

# AMERICAN ARTISAN

MAY 1957

..The Magazine of

RESIDENTIAL AIR CONDITIONING

FARM AIR HEATING • SHEET METAL CONTRACTING



## COOLING SALES BEGIN AT HOME

Practicing what he preaches in his sales presentations to prospects, dealer and his wife inspect the cooling system in their new home, which will be used in demonstrations for prospects as well as for a source of first-hand experience to bolster his sales story

... see page 46

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*An exciting new*

**BASEBOARD PERIMETER  
DIFFUSER**

*Styled by* **AIR CONTROL**



No. 170 Baseboard Diffuser

**"Air Sweep" Styling — Wide Air Pattern — Large Free Area**

Here's a diffuser with a host of new features sure to please both installer and home owner. It's Air Control's new No. 170 Baseboard Diffuser, a low cost unit with high quality performance and fast, easy installation. Perfect for heating and cooling!

**STYLING** — Air Sweep Styling beautifully blends sculptured lines for new smooth, attractive appearance. And new two-tone finish makes the unit appear lower and closer to wall — an exclusive Air Control feature.

**AIR PATTERN** — delivers air in a wide, fan-shaped pattern with unusually low resistance. Adjustable fins permit changing air pattern as desired. Balancing damper can be set for any selected CFM.

**INSTALLATION** — can be installed on sub-floor and plastered in, or installed on finished floor. Face is removable on either installation. Fits 10 x 2 1/4, 12 x 2 1/4, or 14 x 2 1/4 boot.

**DIMENSIONS** — One size only — 24" long x 4" high. Projects 3" at base. Has ample overlap to cover rough cut opening.

**34**

**SQ. INCHES OF  
FREE AREA**

**ENOUGH FOR 14 x 2 1/4 BOOT**

**FOR ONLY**

**\$550**  
LIST PRICE

**AND TWO-TONE FINISH!**

Only Air Control offers you this exclusive styling advance. Handsome two-tone beige finish blends perfectly with any color scheme.



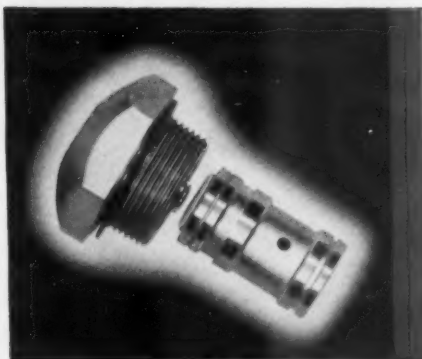
See your favorite jobber or write:

**AIR CONTROL PRODUCTS, INC.**

157 Center Street

Coopersville, Michigan





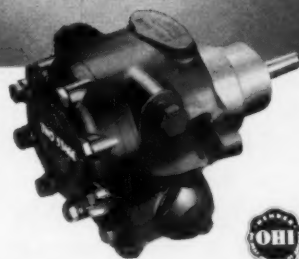
Neoprene disc positively seals rounded bronze outlet plug

On closing stroke the efficient piston-type valve of the Sundstrand Fuel Unit drives a pliable neoprene disc firmly against the rounded end of the bronze outlet plug for positive closure unaffected by ordinary dirt particles. Clean cutoff under all conditions is assured, seepage eliminated, even during long shutdown periods. Your burner is always protected from after-drip and resultant carbonization.

No detail has been slighted by the Sundstrand engineers in their endeavor to create a fuel unit that brings out and sustains every performance advantage designed and built into your burners. Sundstrand's place as "first in fuel units" is the verdict of the men who make and sell oil burners—an expert judgment based on easy installation and service, low maintenance requirements, long life, and a consistent record of insuring burner performance "as specified."



**MODEL H**—high-pressure, two-stage, for long line, high lift. 3, 6, 10, 14, and 20 gph. Three basic Sundstrand models solve all fuel unit problems.



## SUNDSTRAND HYDRAULIC DIVISION

of Sundstrand Machine Tool Co., 2210 Harrison Ave., Rockford, Ill.—Eastern Sales Office: 89 Summit Ave., Summit, N. J. • Made in Canada by John Inglis, Ltd., 14 Strachan Ave., Toronto—Made in Sweden by Sundstrand Hydraulic AB Stockholm.

# AMERICAN ARTISAN

MAY 1957

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## RESIDENTIAL AIR CONDITIONING WARM AIR HEATING SHEET METAL CONTRACTING

Merged with American Artisan are "Warm Air Heating" and "Furnaces and Sheet Metals"

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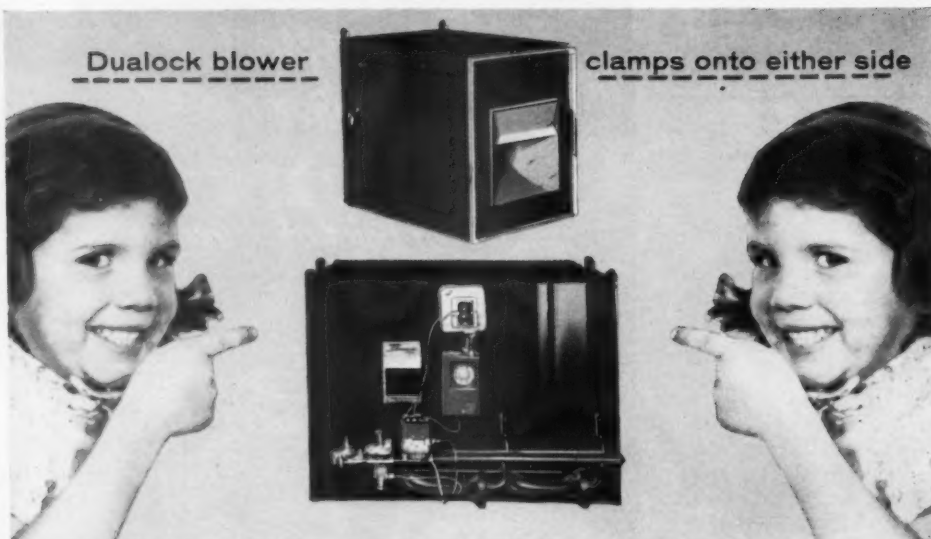
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## Reverse Air Discharge in Five Minutes With New Mueller Climatrol Horizontal

### "Dualock†" Eliminates Re-Assembly in Tight Installation Spots

Your biggest break yet in installing horizontal heating! Never again must you switch controls to reverse air discharge. With the Mueller Climatrol 166-167, blower attaches to either right or left side

† Trademark

in scant minutes! Reason: unique Tite-wedge† clamp that grips blower and unit in an air-tight assembly.

Sell it for attics, crawl spaces, basements, utility rooms. Sell it where commercial jobs call for heating one or a few rooms. In fact, for any demand — 80 to 140 thousand Btu — its easy-going installation leaves you a bigger piece of profit.



Your man from Mueller Climatrol can give you the full story — including dimensions, price and capacity information. Or if you prefer, write direct to . . .

### Two-Section Construction Makes Handling a Breeze!

Another installation extra you get only with the Mueller Climatrol Type 166-167 horizontal. Because the unit is made in two easier-to-handle sections, you save the strain of one bulky back-breaker. Heaviest section weighs 200 pounds.

Compact, too — will slip easily through a scuttle hole as small as 30" x 30".

That's not all — how about these other terrific time-savers:

- EACH SECTION COMPLETELY ASSEMBLED AND PRE-WIRED. Just connect gas, blower and thermostat wire — that's it!
- BUILT-ON HANGER ATTACHMENTS. All set for suspended installation.

And there's a lot more good news for both you and your customers.

## Mueller Climatrol®

2030 W. Oklahoma Ave. • Milwaukee 1, Wis.

## the editor's notebook

### Thumbing Through This Month's Artisan

... we visit a dealer whose *Cooling Sales Begin at Home*, where he lives in air conditioned comfort the year around and uses first-hand experience to add power to his sales presentations. We find this dealer's enthusiasm is contagious when he talks central cooling to a prospect, because he knows what he's talking about. We find him ready to talk about operating costs, willing to use his own system as a demonstration, and able to convince prospects he can provide them with the same comfortable surroundings he points out in his own home and office.

### Roofing

... we look on as a *Terne Roofing Job Puts Ramblin' Wrecks Underground* in Georgia Tech's new building which takes advantage of a natural ravine on the college campus to provide a below-grade seating area and sports arena covered by an inverted saucer-like roof which projects above the ground. We see why the contractor chose 40 lb terne roofing sheets and standing and batten seam construction to provide the 270 ft diameter, 75 ft high roof with a fan cupola at the top, and we follow the complete construction process through installation of the 725 squares and the seams, gutters, flashing, vents and other components of the modern structure.

### Heating

... and we begin a new series of reports covering tests by the NWAHACA

## INCREASE EQUIPMENT SALES ...cut down delivery costs

Sentry ODF® Tank Gauge tells drivers what they want to know  
*at point of delivery!*



### ONLY Sentry OFFERS SUCH A COMPLETE LINE OF DIRECT AND REMOTE READING TANK GAUGES

Above is SENTRY'S newest — The ODF At-A-Glance tank gauge that's setting new records in building sales and customer goodwill. Located outside of building at fill pipe, this easy-to-read weather-proof gauge shows the exact oil level in the indoor tank. Saves costly time consuming trips to basement, unnecessary hose unreeling and eliminates over-flow. Permits delivery without disturbing customer.

Other constant-register SENTRY gauges include combination tank and remote reading, barrel gauges, direct reading, and gauges for stove and space heater tank. Write today for full information about these fast moving business getters. Advertising aids available.



**KRUEGER Sentry GAUGES**  
GREEN BAY • WISCONSIN

## the editor's notebook

(continued)

mobile laboratory on unusual heating systems. We move into the first floor apartment of a two-story addition to an existing building where the first *Heating Study Evaluates Crawl Space Plenum System*, which is comprised of a 75,000 Btuh oil-fired counter-flow furnace with four 8 in. round branch stub ducts connected to the subfloor plenum. Through a series of tests covering air temperatures, velocities, humidity, construction features, system design, etc., we are able to draw some conclusions concerning overall efficiency of such a system which can be used in similar jobs that may arise.

### Hotel

... and we see how *18-Zone Cooling Modernizes a 9 Story Hotel* for less than \$300 per room, by employing a zone arrangement which divides each floor of the ell shaped building into two zones supplied by two 10 ton packaged units through a graduated trunk duct system with takeoffs to each room. We note in the cost breakdown that the modernization job can be expected to increase the hotel's revenue \$96 a year per room—a strong selling point for modernization-minded dealers.

### Sees Budget Surplus For 1958

FOR THE FIRST TIME since the carefree days of the 1920's we have the prospect of three consecutive years in which the federal government can show a budget surplus.

In commenting on fiscal prospects for 1958, the President said, and we quote:



why  
***LOCKFORMER***

gives  
you  
perfect  
fabrication

...at  
**HALF**  
your  
usual  
over-all  
cost!



**Speed is the big reason...**

One man with a Lockformer can roll a complete 8-foot Pittsburgh Lock in just 17 seconds. At this rate a Lockformer can pay for itself on a single job . . . *time after time*. Lockformer increases profits while stacking up those "extra" savings in time and labor. Cuts over-all fabrication costs in half on *any* job!

**Lockformer Adaptability is another reason...**

Auxiliary rolls and extended shafts equip Lockformers for a wide range of lock-forming jobs—make Double Seam, Drive Cleat and Standing Seams as well as Right Angle Flanges. And with low-cost attachments, Lockformers pull double duty as power flangers or power slitters.

ECONOMY, QUALITY AND DEPENDABILITY go hand in hand on any Lockformer job. Year after year you can count on Lockformer to roll out the *best* fabrication, *fastest*!



Send for  
your free  
catalog



One man with a Lockformer makes more Pittsburgh Locks  
than 16 men with 6 brakes

**THE LOCKFORMER CO.**

4615 WEST ROOSEVELT ROAD  
CHICAGO 50, ILLINOIS

## the editor's notebook

(continued)

"With sound public and private policies, the prospect for continued economic growth is bright.

"Attainment of that goal is possible only with prudent management of the government's fiscal affairs. Our federal budget must contribute to the nation's financial stability and to the preservation of the purchasing power of the dollar. Maintaining a sound dollar requires of us both self-discipline and courage. At a time like the present when the economy is operating at a very high rate and is subject to inflationary pressures, government clearly should seek to alleviate rather than aggravate those pressures. Government can do its part. But business and labor leadership must earnestly cooperate.

"The prospective budget surplus in the fiscal year 1958 will reinforce the restraining effect of present credit and monetary policies."

### Curtain Wall Panels For Home Construction?

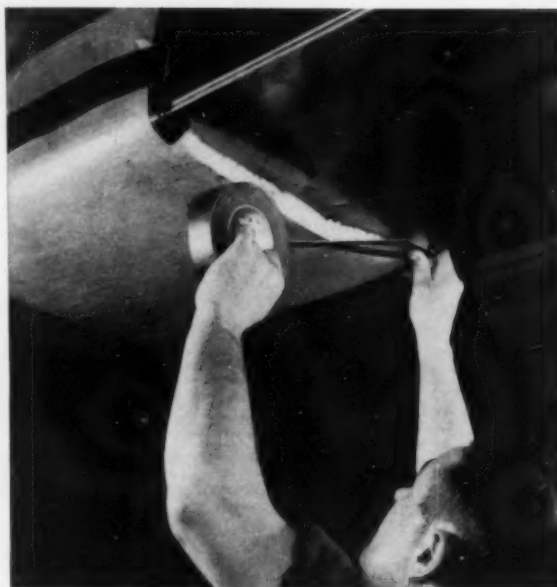
HERE IS SOMETHING for sheet metal contractors to think about — large numbers of houses constructed of curtain wall panels! And it's very possible, according to House and Home magazine, which reports:

"A typical 1200 sq ft house with modular structural steel wall units promises savings of at least \$200 per house over conventional wood framing walls. Each panel is 5 ft, 4 in. wide, and 6 ft, 10 in. high. They can be faced with any type of exterior siding, and on the inside with drywall or hardboard. No posts, studs, window headers or sills are required, and when locked together these panels are



## New Arno DUCTAPE

### Speeds Insulation Jobs



Cost savings at your finger tips! As quickly as you can unroll and press Arno Ductape against the job—it's done. This sturdy tape sticks instantly and permanently to metal, paper, wood and plastic. Its holding power is not affected by heat, cold or moisture. Both flame-resistant and non flame-resistant types available. Try Ductape on your next job.



#### Sales Representatives:

ATLANTA—1272 Westridge Rd. S.W.  
DETROIT—12915 W. Eight Mile Rd.  
FORT WORTH—2724 Tillar Street  
LOS ANGELES—3225 East 46th Street  
NEW YORK—104 West 17th Street

#### ARNO ADHESIVE TAPES, INC.\*

4110 Ohio St., Michigan City, Ind.

Please send me a free 15 ft. sample flame-resistant ☐ non flame-resistant ☐  
I am a Distributor ☐ Contractor ☐

Name

Company

Address

City  State

\*Subsidiary of The Scholl Mfg. Co., Inc.

## the editor's notebook

(continued)

weatherproof, flashed, and work with trusses, open beams or plastered ceilings, and over wood floor or concrete slabs. These new wall panels can form a full blank wall, or accommodate windows or doors (sliding or regular) of any height. Model houses to test the steel panels are now being built to determine the technology and economics of actual erection in quantity. If everything goes as planned, the wall sections may be in mass production late this year.

"Another new idea for the use of steel in houses calls for coating steel sheets with liquid vinyl plastic to make bright, durable wall panels of an almost unlimited range of colors and textures. The steel is surface-treated to improve bonding qualities, and a special adhesive is applied to the top surface, then cured by heating. After air cooling, steel is coated with a thermo-responsive vinyl plastic and again heated to solidify the plastic. Before cooling the vinyl coat is embossed with a texture or a design.

"It is said that these new panels will be unaffected by humidity and by many chemicals. They also should deaden sound effectively. This new product may also be used for various kitchen surfaces and for major appliance cabinets or coatings."

### Smaller Rise in Home Cost Predicted

AT A RECENT press conference Joseph B. Haverstick, past president, National Association of Home Builders, said that home building costs would rise from 3 to 4 percent above 1956 costs. This rise is lower than it has been in recent years. Most of this cost is due to

# MIDCO'S *New* SIDE WALL PERIMETER DIFFUSER



PATENT NO. D179-140

No. 800 is the last word in sidewall perimeter heating. Has volume control adjustment. Furnished in 10"x6", 12"x6" and 14"x6" sizes.

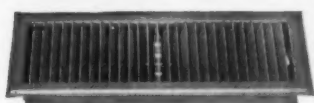
## CONSIDER THESE EXAMPLES OF MIDCO'S *Complete* LINE



### No. 900 OPEN TOP DIFFUSER

(Also made with closed top)

LENGTHS	FREE AREA
17 inches	30 sq. in.
24 inches	43 sq. in.
30 inches	54 sq. in.
36 inches	65 sq. in.



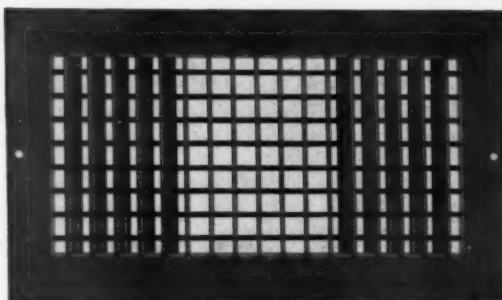
### No. 512 PERIMETER FLOOR REGISTER

Sizes:

2 1/4 x 10	4 x 10	6 x 10
2 1/4 x 12	4 x 12	6 x 12
2 1/4 x 14	4 x 14	6 x 14

### No. VHD COMMERCIAL MULTIPLE DEFLECTION REGISTER AND GRILLE

Aero dynamically correct 11/16 inch adjustable vanes give positive control of throw and flow.



SOME JOBBER OUTLETS STILL OPEN

# MIDCO

REGISTER CORPORATION  
1059 GRAND AVE. ST. PAUL 5, MINN.

Makers of over 6000 different register units

## the editor's notebook

(continued)

increased labor costs, he said, and pointed out that the increase in costs plus the tight money situation will result in a decrease in the total number of houses built during 1957. It is expected that there will be about a 10 percent decrease, with most of the decrease being reflected in the number of houses planned to cost less than \$15,000.

The under \$15,000 price class is the largest group and had been showing the best potential as a volume market for summer air conditioning. The anticipated decrease of 10 percent may well be reflected in the total number of residential cooling installations made during 1957. A strong promotion program directed to the local builder may help him decide not to cancel plans for year 'round air conditioning systems. If he feels that some of the features he has been offering must be discontinued, a strong local selling program will help keep consumer interest in summer air conditioning at a high level, so that the builder will think twice before canceling any outstanding order for cooling equipment.

### Cites Advantages of Skilled Craftsman

THE KEY ROLE of the skilled craftsman as the 'anchor man' on industry's technological team is stressed in a new educational aid booklet just published by the education department of the National Association of Manufacturers. Entitled "Your Opportunities in Industry as a Skilled Craftsman," the pocket-sized 32 page booklet covers the scope, content and importance of apprentice training and cites the immediate val-

# NOW there are 14 Vaporite MODELS

... a size and type Humidifier for every furnace installation.

## EVERY MODEL TESTED AND PROVED

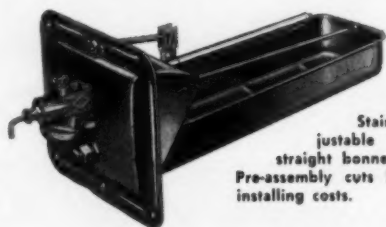


**SERIES 555**  
Fits any straight side warm air furnace.

Corrosion resistant, stainless steel vapor pan 4" x 15". Completely assembled for quick and easy installation.

New copper overflow on Model 555C.

- No extras to buy
- No parts to assemble
- No extra holes to cut
- No tricky mounting



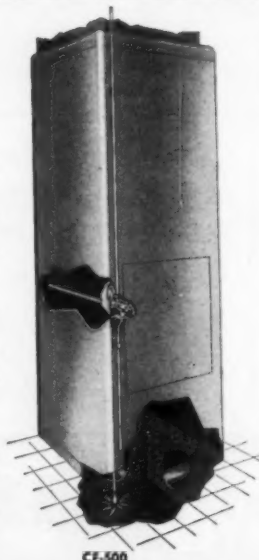
**SERIES 577**  
Stainless steel. Adjustable to sloping or straight bonnet furnaces. Pre-assembly cuts labor time and installing costs.

## EVERY MODEL WITH NEW SENSITIVE THERMOSTAT CONTROL TO ASSURE BALANCED HUMIDITY

### LOW COST

### FIELD-TESTED COUNTERFLOW STYLE

- Designed especially for basementless houses with perimeter heating.
- Complete assemblies for furnaces with concrete floor plenums or with crawl space plenums.
- Installs in minute on exterior of furnace casing. All parts furnished.



CF-500

WRITE FOR CATALOG AA-5

AUTOMATIC HUMIDIFIER CO., Cedar Falls, Iowa

## the editor's notebook

(continued)

ues of vocational-industrial and industrial arts training in helping a youngster get a head start on skill development.

"There are no short cuts in acquiring a skill," the pamphlet points out. "You can't acquire it simply by reading textbooks or listening to lectures. It takes aptitude, courage, ambition, months of study, on-the-job training and related technical instruction. Is it worth it?" The pamphlet answers the question by quoting Dr. James Bryant Conant, former president of Harvard University, who has said: "In the whole range of scientific and technological activities there is no substitute for a first-rate man. Ten second-rate men can't replace him."

The booklet, profusely illustrated with photographs and drawings, describes how the student can best prepare himself for an apprentice program while still in high school and points out the courses and special aptitudes required for skill development.

Opportunities open to the skilled craftsman in metal working are related, along with special, individual projects which help the student measure and determine his own qualifications for entry into the skilled trades.

The booklet can be obtained by writing to the Education Department, National Association of Manufacturers, 2 E. 48th St., New York 17, N. Y.

### Suggests 'No Ceiling' on Salesman Salaries

DEVELOPING career salesmen is smart merchandising, Arnold Michelson, vice president, Minneapolis-Honeywell Regulator Co., suggests. "It is just as smart to merchandise selling within an organ-

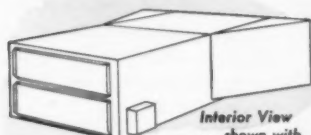


# New, air-cooled *Central Cooling Packs*

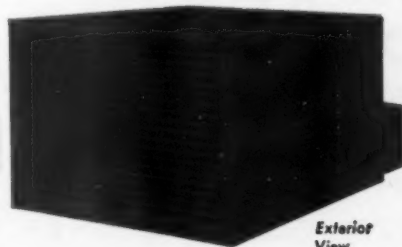
## give you a townful of new prospects!

### THE "Coolpak"

2 and 3½ H. P.



Interior View  
... shown with  
side air scoops



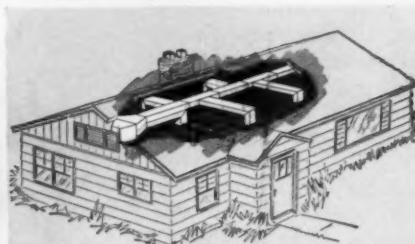
Exterior  
View

### ● Ideal for homes, stores and offices...suited for almost any location from roof to basement

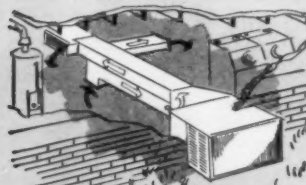
It's ready to go... in hundreds of types of installations throughout your area... Century's New "Coolpak"!... with full rated cooling capacities of 22,000 and 36,000 BTU/hr. "Coolpak" gives whole-house cooling from out-of-the-way locations in attic, basement, dormer, hall, crawl space or roof. These versatile units may be tied into existing ductwork or installed with packaged, lightweight Fiberglas duct systems.

Now you can sell complete air-cooling for less than multiple small-space coolers. Costs less to operate, too... controlled by room thermostat. Has special low capacity cooling for mild weather conditions. The cabinet is sound insulated for whisper-quiet performance.

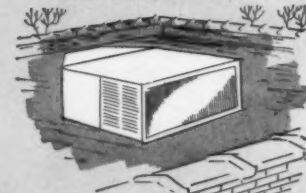
Installation?... It's easy! All units are shipped completely assembled and charged. Wiring is simple. Get the facts... learn the many other sales advantages of the "Coolpak". Write us today.



ATTIC



BASEMENT



FLAT ROOF

### ... Joins Century Line

- 2, 3, or 5 H. P. ● Remote Air or Water-Cooled Condensers

Meet every heating-cooling need with the dependable Century line. To be sure they will do the job for which they're rated, every system is tested under typical operating conditions in Century's modern laboratories. As advertised to your customers, "you can count on Century for comfort."



LO-BOYS



STORE  
COOLER



COUNTERFLOS



HI-BOYS



HORIZONTALS...  
with coil cabinet in duct.

# Century

**CENTURY ENGINEERING CORPORATION**  
**CEDAR RAPIDS, IOWA**

Dept. 210-C

Please send me complete information regarding your new "Coolpak." ☐ I would also appreciate specifications and rating information on the Century Heating-Cooling line.

Company.....

Attention.....

Address.....

## the editor's notebook

(continued)

ization as it is to merchandise your product."

Mr. Michelson described a career salesman as "a member of management but not a manager, a man whose sights are set on improving his selling abilities and who generally has little interest or skill in non-selling areas; he can earn a good living for himself and his company in selling and does not want to do other work."

Most high-rating salesmen, according to Mr. Michelson, have these qualities: "savoir faire, sophistication, a great degree of realistic imagination, personality, intelligence that seeks knowledge rather than information, and, above all, culture."

He suggested that there should be no ceiling on the salary range for salesmen. "Compensation is a major item in retaining career salesmen," he noted. "We must pay for performance in the sales area."

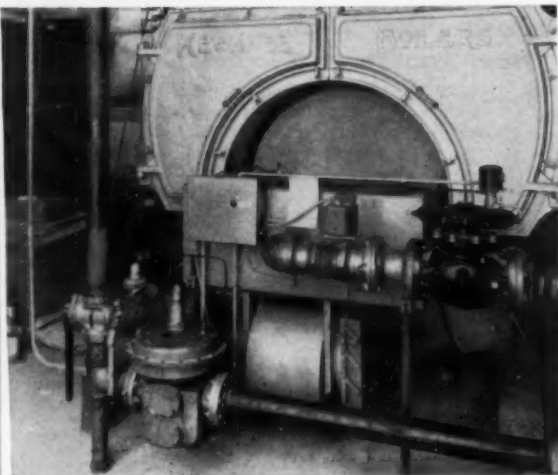
### Cooling for 10 Million Homes in Next 5 Years

ARE YOU going to be among those dealers who are getting the largest percentage of sales from the 10 million houses that will be completely or partially summer air conditioned during the next five years? This figure was the prediction of George F. Robinson, residential sales manager, Carrier Corp. The biggest part of this increase in usage will result from modernization of existing homes rather than installation in new homes, Mr. Robinson stated in a panel discussion before a meeting sponsored by Operation Home Improvement.

He pointed out that nearly half of all central air conditioning systems for residences and the majority of

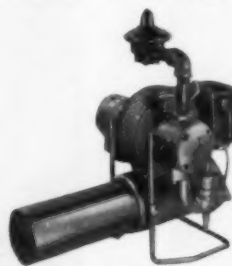


## Hot water for 1,000 cabanas heated at less-than-expected cost by **LO-BLAST** POWER GAS BURNER



At beautiful Malibu Beach Club, Lido Beach, Long Island, N. Y., the hot water demand of these cabanas creates an exceptionally heavy load. 1000 showers and the kitchen facilities of two restaurants are amply and economically supplied by a 450 horsepower Scotch Marine boiler, automatically gas-fired by a 20,000,000 BTU-Lo-BLAST Burner. Manufactured gas is furnished by the Long Island Lighting Company, which reports that operating cost is less than estimated at the time of installation!

Lo-BLAST Power Burners use an extremely quiet, low-speed blower to provide perfectly controlled primary and secondary air...operation is always independent of natural draft. These burners eliminate the need for high chimneys—inshot design reduces maintenance cost. All units are completely assembled and tested on gas before shipment.



Capacities 75,000 — 20,000,000 BTU/hr. input.

Lo-BLAST Burners average 10% less in operating cost!

**MID-CONTINENT**  
METAL PRODUCTS CO.  
1960 N. Clybourn Ave., Chicago 14, Ill.

## the editor's notebook

(continued)

window conditioners are currently being sold for existing dwellings.

Describing the rise of summer air conditioning as a clear illustration of the changing aspirations of the American family, Mr. Robinson called for major emphasis on positive measures to improve and keep a home modern rather than on maintenance alone.

"Oldness in a home is a matter of obsolescence, not of age," he declared. "A home need never grow old as long as it changes and grows to keep up with the life and constantly changing needs and desires of the family."

"One of the greatest services Operation Home Improvement can perform for the homeowner in helping him to raise his standard of living is to crystallize the possibilities for improving his home so that it can continue to meet his developing wants and aspirations."

### Sees Real Need Here For Publicity Program

IN A RECENT letter from Albert Woodruff Gray, author of American Artisan's monthly legal page, appeared this very pointed verse:

The codfish lays 10,000 eggs

The homely hen lays one  
The codfish never cackles  
To tell you what she's done.

And so we scorn the codfish

While the humble hen we prize

Which only goes to show you

That it pays to advertise.  
How true this is!

*Clyde M. Barner*

EDITOR

Architects | Shreve, Lamb & Harmon Associates  
— for the Department of Public Works  
The City of New York

Builders | Castagna & Son Inc. and  
H. R. H. Construction Co.

Contractors | Alpine Sheet Metal  
& Ventilating Co., Inc.

## As in the Supreme Court Building

Brooklyn, New York



Ducts made of **sofTITE Cop-R-Loy** form quickly without preliminary cutting.



Ductile, tight-coated **sofTITE Cop-R-Loy** is ideal for long spans.



**sofTITE Cop-R-Loy** joins easily without shearing waste.

## get longer lasting ducts with Wheeling **sofTITE**<sup>®</sup> **COP-R-LOY**<sup>®</sup> Galvanized Sheets

In about October 1958, the new \$20 million Supreme Court Building in Brooklyn, N. Y. will be completed. In it you'll find more than 365 tons of air conditioning, heating and ventilating ducts made of Wheeling **sofTITE Cop-R-Loy Galvanized Sheets**.

By choosing **sofTITE Cop-R-Loy**, the builders and sub-contractors were assured of the ultimate in long-lasting, easy-working, good-looking galvanized sheets.

For proof of **sofTITE Cop-R-Loy's** longer life and for full details contact the Wheeling warehouse or sales office nearest you.



**WHEELING CORRUGATING COMPANY, WHEELING, W. VA.**

**IT'S WHEELING STEEL**

**IMMEDIATE DELIVERY ON ALL WAREHOUSE-STOCKED ITEMS FROM THESE WAREHOUSES: BOSTON, BUFFALO, CHICAGO, COLUMBUS, DETROIT, KANSAS CITY, LOUISVILLE, MINNEAPOLIS, NEW ORLEANS, NEW YORK, PHILADELPHIA, RICHMOND, ST. LOUIS. SALES OFFICES: ATLANTA, HOUSTON**

*With Honeywell Zone Rebalancing—*

# Turn problem areas

*Here are the 6 big problem areas with one answer...*

## *Honeywell Zone Rebalancing*

1. Split-level homes with convection between floors
2. Finished basements
3. Spread-out floor plan with exposure differences
4. Living and sleeping areas
5. Large picture windows with variable heat gain and loss
6. Rooms over a garage or unheated areas

**H**ERE'S AN inexpensive yet unique comfort feature that will enable you to realize an extra profit margin on every job.

Honeywell Zone Rebalancing means dividing the home into two or more comfort areas. The thermostat in each area continually adjusts the distribution of heating or cooling to maintain the exact tempera-

ture requirement of each individual zone.

This modulating system works with all types of central heating-cooling systems to get maximum comfort and efficiency out of your heating-cooling units. You'll be way ahead in customer satisfaction. And you'll be ahead in profits because you are offering a more complete heating-cooling job.

**Choose from the complete Honeywell line of thermostats. Here are three popular examples**



*T86 for heating*

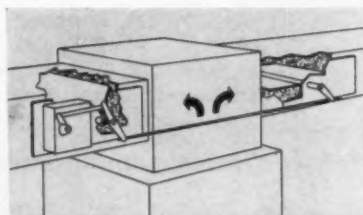


*T87 for heating-cooling*

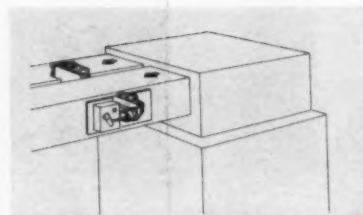


*Electric Clock Thermostat for completely automatic control*

**As a dealer,  
your sales potential  
with this  
economy priced,  
easy-to-sell system,  
is enormous.**



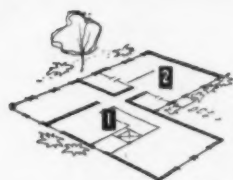
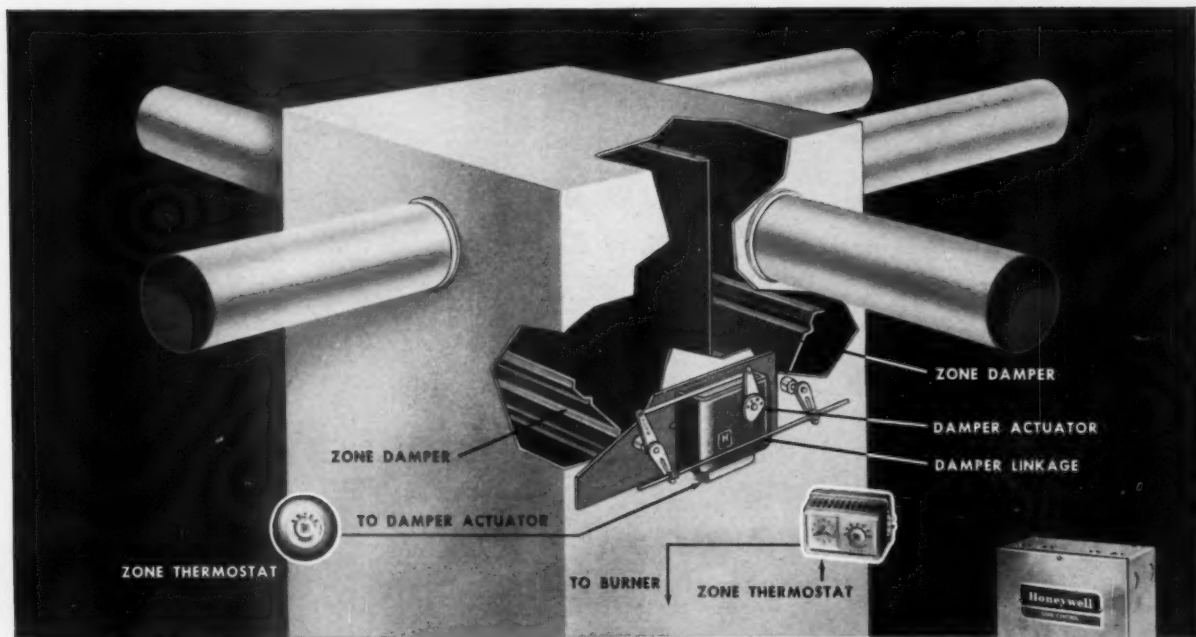
*Extended plenum duct system showing linkage for two zones using only one motor.*



*Parallel duct system, a typical installation, showing both dampers on a single shaft.*



# into profit areas



Shown above, is a split plenum with the Honeywell 2-Zone Balancing system. One actuator controls the dampers to two zones.

You can offer zone rebalancing in two or more zones—to fit any need. Honeywell Zone Rebalancing will work with forced air heating-cooling installations in all types of standard or custom homes.

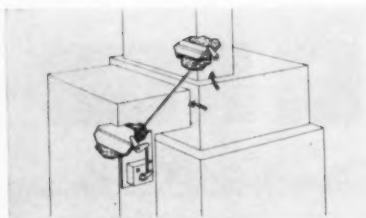
Key to the whole system is a Honeywell

**W407 ZONE WIRING PANEL**  
for heating-cooling systems, easily  
and simply inter-connects all controls.

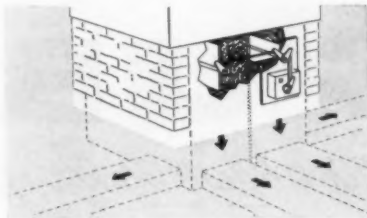


**Modulating Damper Actuator.** This actuator operates dampers in the zone ducts to continuously increase or decrease the heated or cooled air volume as called for by the thermostats.

For further information on the new Honeywell Warm Air Zone Rebalancing System or for full and complete details on wet heat zoning equipment, call your local Honeywell office. Or write direct to Minneapolis-Honeywell, Dept. AA-5-172, Minneapolis 8, Minn.



*Split-level* home can use this duct damper and linkage arrangement with one motor.



*Counter-flow furnace* can utilize this arrangement for forced warm air perimeter heating.

## Honeywell



*First in Controls*

# REPUBLIC



**DUCT-WORK DEPENDABILITY** on this air-conditioning modernization job is backed by quality of Republic Continuous Galvanized Sheets. Customer satisfaction is assured. Protective zinc coating remains undamaged by any fabricating operation permitted by the base metal.

# REPUBLIC



*World's Widest Range of Standard Steels*

# STEEL SHEETS

## protect fabricated products and profits

Full-line adaptability is one of the major reasons it will pay you to insist on Republic Steel Sheets for all of your fabricating requirements. You can select from a wide range of types and sizes designed to meet varying production and application problems efficiently. Resulting quality-products offer maximum profit protection through customer satisfaction, on individual jobs and repeat business. For example:

**REPUBLIC CONTINUOUS GALVANIZED** sheets are ideally suited to applications calling for corrosion protection at low initial cost. Uniform, tight zinc coating won't crack, flake or peel under any forming operation permitted by the base metal.

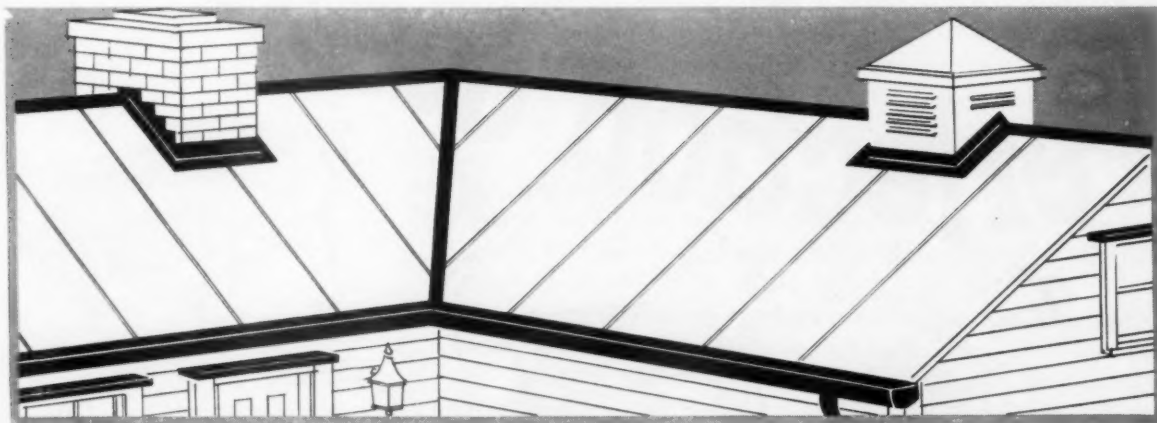
**REPUBLIC ELECTRO PAINTLOK®** sheets are adaptable to products requiring painted, varnished, lacquered, lithographed or synthetic enameled finish. Chemically treated electro-galvanized surface provides excellent finish-holding char-

acteristics—is unaffected by severe fabrication, and continues to protect products against corrosion even if applied finish is scratched through.

**REPUBLIC GALVANNEALED** sheets solve problem jobs requiring weather protection, painted or not. Annealed galvanized surface holds paint firmly. As an integral part of the base sheet, it provides excellent exposed service dependability.

**REPUBLIC ENDURO® STAINLESS STEEL** sheets are perfect for a wide variety of applications. Tough and strong, ENDURO provides life-time beauty plus top resistance to heat, abrasion, corrosion, and impact. Fabricates readily on your present equipment.

Get the full story on how these and other Republic Sheet Products help you protect your fabricated products and profits. Contact the steel warehouse serving your area, or send coupon for information.



**REPUBLIC ROOFING TERNE** provide permanent weather protection for a wide range of roof drainage applications. Terne plate is strong, ductile, and extremely corrosion-resistant—requiring only occasional painting. Hot-dip coating of lead-tin alloy adheres tightly to the copper-steel base regardless of forming punishment. These factors, plus long life, make terne plate ideal for flashing, valleys, ridge rolls, gutters,

downspouts and other uses, including complete roofs. Available in 50-foot rolls, in 4" through 28" widths, 1X and 1C gages, 40, 20, and 8 lb. coatings, plain or painted one or both sides. Also in 14 x 20" and 20 x 28" sheets, and 5 x 7" flashing shingles. For complete information on this outstanding roofing material, send coupon.

# STEEL

*and Steel Products*

### REPUBLIC STEEL CORPORATION

DEPT. C-3858

3162 EAST 45th STREET • CLEVELAND 27, OHIO

Please send me information on:

- |  |  |
|--|--|
| <input type="checkbox"/> Continuous Galvanized Sheets  | <input type="checkbox"/> Galvannealed Sheets |
| <input type="checkbox"/> Electro Paintlok Sheets       | <input type="checkbox"/> Roofing Terns       |
| <input type="checkbox"/> ENDURO Stainless Steel Sheets |  |

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_





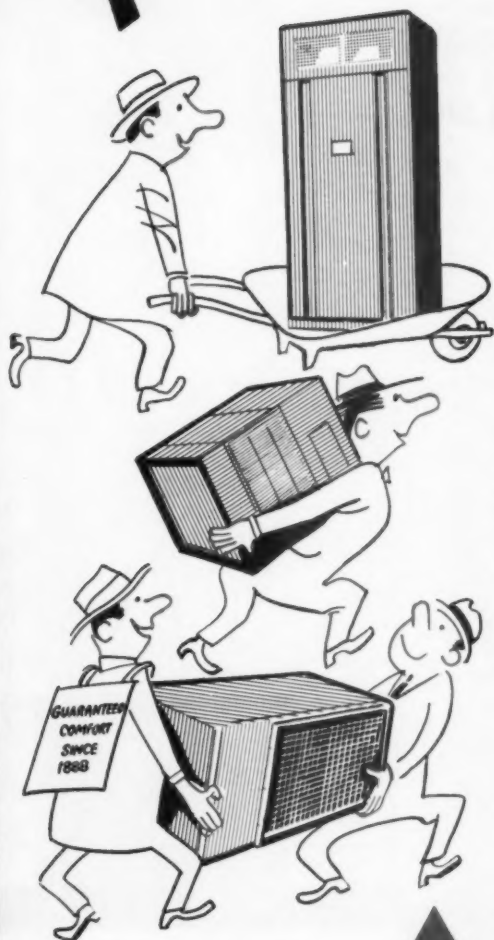


# You miss a sale...

**THERE'S A PERFECTION**

**AIR CONDITIONER**

**FOR EVERY CUSTOMER**



**YOU'LL MAKE SALES RECORDS WITH PERFECTION...** there's a product for every prospect. The new Perfection Tuckaway that will handle almost any installation... air-cooled units from 2 ton through 10 ton... water-cooled from 2 through 40 ton... plus 6 room air conditioners for added sales.

**YOU CAN COMPETE FOR EVERY SALE WITH PERFECTION...** there's a price for any installation. A De Luxe line for the top of the market... a standard line for the mass market.

**YOU CAN CLINCH SALES WITH PERFECTION.** There are powerful sales features in every unit. Efficient, *full-capacity* air conditioning that does a complete job and costs less to operate. (And eliminates service calls.)

**YOU GET IMMEDIATE DELIVERY FROM YOUR PERFECTION WHOLE-SALER.** You may not stock the unit your customer wants... but your nearby wholesaler does. And you can get it immediately... in time to clinch the sale.

**YOU CAN DEPEND ON PERFECTION COOLING AND HEATING...** your customers will too. Perfection has been making "home comfort" products since 1888. National advertising, local advertising, and the most complete dealer promotional program in the industry will continue to sell Perfection quality in 1957.

**YOU'LL PICK UP NEW SALES WITH PERFECTION.** You can't miss with matching Perfection furnaces—the only furnaces with the exclusive sales feature—REGULAIRE.

**A FEW TERRITORIES ARE STILL OPEN**—write, wire or phone today!



# Perfection

DIVISION OF  
**HUPP**  
Corporation

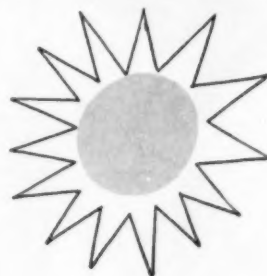
**AUTOMATIC COMFORT**

**HEATING/COOLING**

**Perfection Industries • Cleveland 10, Ohio**

# A NEW HEAT PUMP WITH LOWER INSTALLATION COSTS THE CARRIER HEAT-PUMP

**Exclusive "Climate-Balanced" design makes possible the first truly practical heat pump**



The Carrier Heat-Pump Weathermaker is the first heat pump designed specifically for maximum efficiency over the whole year-round range of operating temperatures.

"Climate-Balanced" design does it. And here's how this exclusive Carrier feature further reduces costs:

You don't pay for more heating capacity than you need.

Operating costs will usually run much lower than other air-to-air type heat pumps. Two years of testing proved this.

The two-section construction of the new Carrier Heat-Pump Weathermaker allows greater flexibility than ever before. The compact Indoor Section occupies no floor space within the house. The Outdoor Section eliminates the need for bulky ductwork to bring in air.

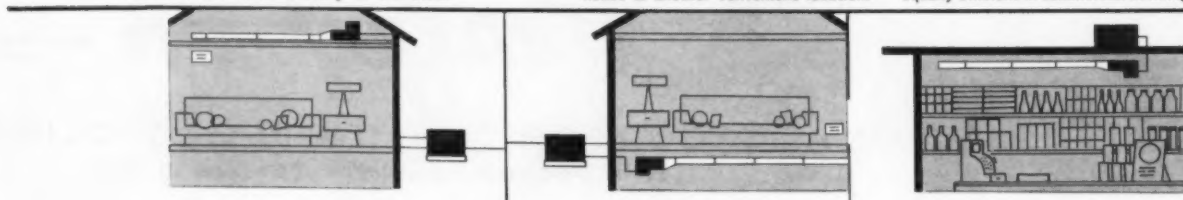
For more information on the Carrier Heat-Pump Weathermaker see the Carrier distributor listed in the Classified Pages of your Telephone Directory. Or write to Carrier Corporation, Syracuse, New York.



Indoor Section of the new Carrier Heat-Pump Weathermaker installs easily in the attic.

Crawl space of a split level or ranch house is another convenient location.

Carrier Heat-Pump Weathermakers are equally efficient in commercial buildings.



# **LOWER FIRST COST, AND LOWER OPERATING COSTS: WEATHERMAKER**



Carrier Heat-Pump Weathermakers provide efficient year-round air conditioning using only air and electricity. Costs of fuel storage tanks and fuel lines are eliminated because they are not needed.

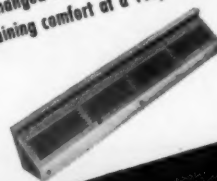
**first name in air conditioning**

***Carrier***

...condensed consumer reports  
from the files of  
**standard**  
registers  
and grilles

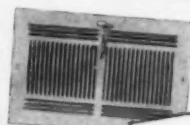
**B-24 PERIMETER  
BASEBOARD DIFFUSERS**

Mad Maud used to fume  
When air blasts blew her from the room,  
But B-24 changed her wrath to revel,  
By maintaining comfort at a very high level!



**PERIMETER  
BASEBOARD REGISTER NO. 551**

Frozen Frank was in a snit;  
found cold corners wherever he'd sit.  
But with the 551's four way diffusion,  
He now has comfort in profusion!



**PH SERIES  
PERIMETER FLOOR REGISTERS**

When Circle Sol entertained the ladies,  
They found her home as hot as hades.  
PH Registers restored her station,  
Through perfect heat regulation!



**CEILING AIR DIFFUSERS**

Sinus Sam was a martyr true;  
Stuffy air turned him blue,  
'Til he put Ceiling Air Diffusers in.  
Now he's in the pink again!



**STANDARD**

...first in engineering for indoor comfort

**STANDARD STAMPING & PERFORATING CO.**  
3137 W. 49th Place, Chicago 32, Illinois

Gentlemen: Please send me your new catalog showing the complete  
line of STANDARD STAMPING REGISTERS AND GRILLES.

Name

Company

Address

City  Zone  State

**MORAL:** If you want to keep  
your customers happy  
mail this coupon  
and make it snappy!



## USS Galvanized Steel Sheets are easy to form



Whatever type of ductwork you make, USS Galvanized Steel Sheets will prove easy to work with. They are uniform in flatness, softness and surface finish. They can be bent, cut, stamped, rolled, soldered in minimum time with satisfactory results. And their tightly adhering, evenly applied zinc coating is highly resistant to flaking,

cracking and chipping under severe forming conditions.

On any job where good-looking, easy-forming galvanized steel sheets would be an asset, ask for USS Galvanized Steel Sheets. For more information, get in touch with the nearest Sales Office of United States Steel.



## USS GALVANIZED STEEL SHEETS

UNITED STATES STEEL CORPORATION, PITTSBURGH • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO  
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.  
UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST  
UNITED STATES STEEL EXPORT COMPANY, NEW YORK



UNITED STATES STEEL



Norman Moffett  
Moffett Heating  
Buffalo, New York

**Take it from one who knows...**

## **"You can stake your reputation on a Milcor installation!"**

Let Norman Moffett, prominent Buffalo contractor, tell you in his own words:

"Here in western New York, where we have hard winters and heavy Spring rains . . . we standardize on Milcor gutter and conductor pipe . . . not only because their high quality reduces call-backs, but also because Milcor has a complete line.

"We feel that using Milcor products has been a big factor in building our gutter business, which now accounts for a good part of our annual volume."

Other sheet-metal men agree with Mr. Moffett. How about *you* — are you enjoying the advantages of using Milcor gutter and accessories?

Order from your jobber or the nearest branch.



K-Gutter



K-Mitre

Two popular Milcor items in a complete line of gutter, conductor pipe, elbows, and accessories.

**MILCOR**® Roof Drainage Equipment

**INLAND STEEL PRODUCTS COMPANY,** Dept. Q, 4023 West Burnham Street • Milwaukee 1, Wisconsin

ATLANTA • BALTIMORE • BUFFALO • CHICAGO • CINCINNATI • CLEVELAND • DALLAS • DENVER • DETROIT • KANSAS CITY • LOS ANGELES • MILWAUKEE • MINNEAPOLIS • NEW ORLEANS • NEW YORK • ST. LOUIS

## Record Set as New Industrial Building Offsets House Lag

WASHINGTON, D.C. — The value of new construction put in place during the first quarter of the year set a new high. March activity brought the total for the first three months to \$9157 billion, 4 percent over last year's January-March high.

Private expenditures accounted for more than 70 percent of all new construction activity during the period. Declines in housing, stores and farm buildings were offset by rises in other types of private construction.

Industrial building activity was one-fifth higher than the record level for the first three months of last year. Office buildings, churches, schools, hospitals, and public utilities were also at an all time high.

## Dayton Clinic Spurs City Renewal Plan

DAYTON, OHIO — A substantial boost was given to the nation-wide program of urban renewal by a two-day clinic held here March 14-15, sponsored by the American Council to Improve Our Neighborhoods. The council is commonly known as ACTION.

The clinic drew participants from 17 states, although invitations were sent only to an 11 state area. Among the 217 persons attending from 68 communities were representatives from such widespread points as Hartford, Conn., and Fargo, N.D.

Andrew Heiskell, publisher of Life magazine and board chairman of ACTION, told the group that "planning is really a case of scheduling the inevitable." Businessmen must provide major leadership in urban renewal "or foot most of the bill in the certain bankruptcy facing communities which fail to revitalize themselves," he said.

## Summer Convention to Offer Dealers Wealth of Information

### West Coast to Tell Stamp Plan Promotion Story

SAN FRANCISCO — Valuable information on the business problems of dealers will be presented at the Summer Convention of the warm air heating and air conditioning industry to be held here June 5-7.

Of special interest will be discussions of the industry's experience on the West Coast where summer air conditioning has been an important factor, where dealers have long been faced with the problems of unusual house designs, and where the Stamp Plan programs have been attempting to up-grade heating and cooling installations.

The convention is being held under the joint sponsorship of the National Warm Air Heating and Air Conditioning Association, the Warm Air Heating Institute of Northern California, the Institute of Heating and Air Conditioning Industries (southern California), and the Portland, Ore., Warm Air Heating and Air Conditioning Association.

To aid dealers in the area of business operations, there will be discussions on such subjects as "Costs! Do You Know Yours?", by M. E. Sale,

## Stainless Production at All-Time High in 1956

NEW YORK CITY — Stainless steel production reached a new all-time high in 1956, according to the American Iron and Steel Institute. Production of all types of stainless steel ingots reached 1,210,569 net tons last year. Production in 1955 was 1,161,177 net tons. The report covers production of 22 companies representing about 98 percent of the estimated total output. The new record was set despite the loss of production suffered during last summer's one month steel strike.

### Convention Data

Where — San Francisco

Hotel — Fairmont

When — June 5-7

What — Summer convention of the warm air heating and air conditioning industry

credit manager of Slakey Brothers, Inc., Sacramento. A panel discussion between builders and contractors will treat "Mutual Problems of the Builders and the Heating and Air Conditioning Contractors." "Certified Heating" will be described by Nat N. Leas, dealer-contractor from Fresno and vice-president of the Sheet Metal and Air Conditioning Contractors National Association.

A full afternoon will be devoted to a panel discussion on "Air Conditioning — Sales, Engineering, Installation, Controls, and Service." Ing Remen, Pacific coast manager, Lennox Industries, Inc., will talk on "Perimeter Heating and Air Conditioning." "Opportunities in Air Conditioning Through Education," will be the topic of an address by Dr. Harold P. Hayes, dean of school of engineering, California State Polytechnical College.

Hitting the important sales and sales promotion subject, there will be talks on "The Unexploited Market" by C. W. Nessel, Minneapolis-Honeywell Regulator Co.; "Consumer Attitudes Toward Air Conditioning" by Herbert T. Gilkey, NWAHACA; "The Terre Haute Story — What Proper Advertising Did for an Average Size Warm Air Heating Contractor" by Frank J. Nunlist, Jr.,

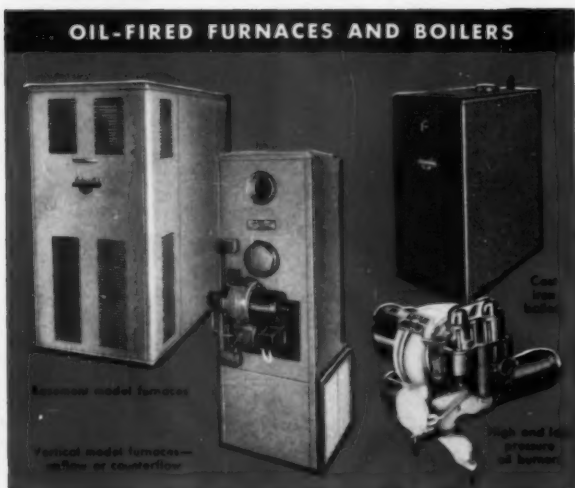
(Continued on page 30)

EVERYTHING TO  
HELP YOU BUILD  
A BIGGER  
BUSINESS!

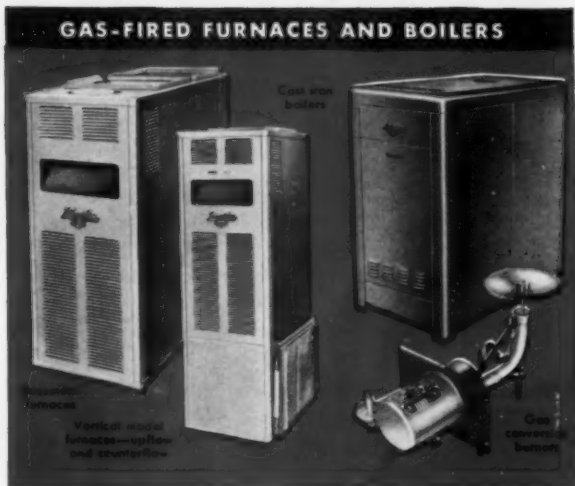
# STEWART-WARNER

## Winkler

### OIL-FIRED FURNACES AND BOILERS



### GAS-FIRED FURNACES AND BOILERS



Stewart-Warner-Winkler representatives cover the nation

In six ways Stewart-Warner-Winkler provides a sound foundation on which you can build a bigger, more profitable business:

1. **Outstanding product**...engineered to the highest standards of an organization famous for quality manufacturing.
2. **A complete line of product**...no home heating or cooling requirement which can't be satisfied.
3. **A comprehensive assortment of selling helps**... literature, displays, demonstration material.

4. **Cooperative advertising plan**... enables you to conduct a continuous, resultful selling program.

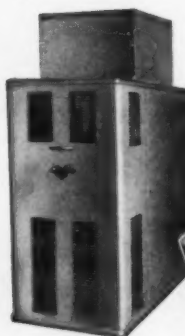
5. **Selling help by factory experts**... District Sales Managers cover the country, always available to help on sales and installation problems.

6. **Training Institute**... free selling and engineering courses for dealers and personnel.

These are the reasons why a Stewart-Warner-Winkler Dealership is a growing and enduring asset for men who take advantage of its many profit-making features.

### HEATING-COOLING CONDITIONERS

Furnaces are available as complete summer-winter air conditioners, equipped with Evaporator Cooling Coil and outdoor Condensing Unit. Or, if originally installed with an empty Evaporator casing, the Evaporator and Condenser can be added later at minimum expense.



Basement model with Evaporator Cooling Coil



Air and water cooled Condensing Unit



Free-standing store cooling unit

### FREE DEALER TRAINING

Stewart-Warner-Winkler backs up *quality of product* with thorough training in *productive salesmanship*! At the Training Institute, ingenious "visualizers" and expert instructors take all the mystery out of air conditioning—show you how to sell Stewart-Warner-Winkler Products and install them for maximum customer satisfaction.

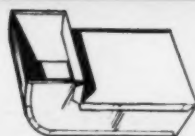
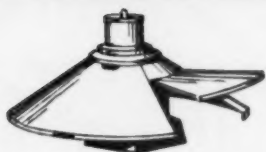
Write, wire or call today for complete information



## STEWART-WARNER CORPORATION

HEATING AND AIR CONDITIONING DIVISION • Dept. A-57, Lebanon, Ind.





If you want fast service on

## GALVANIZED SHEETS

that form easily into any shape  
without flaking, chipping, cracking  
or peeling... Call...

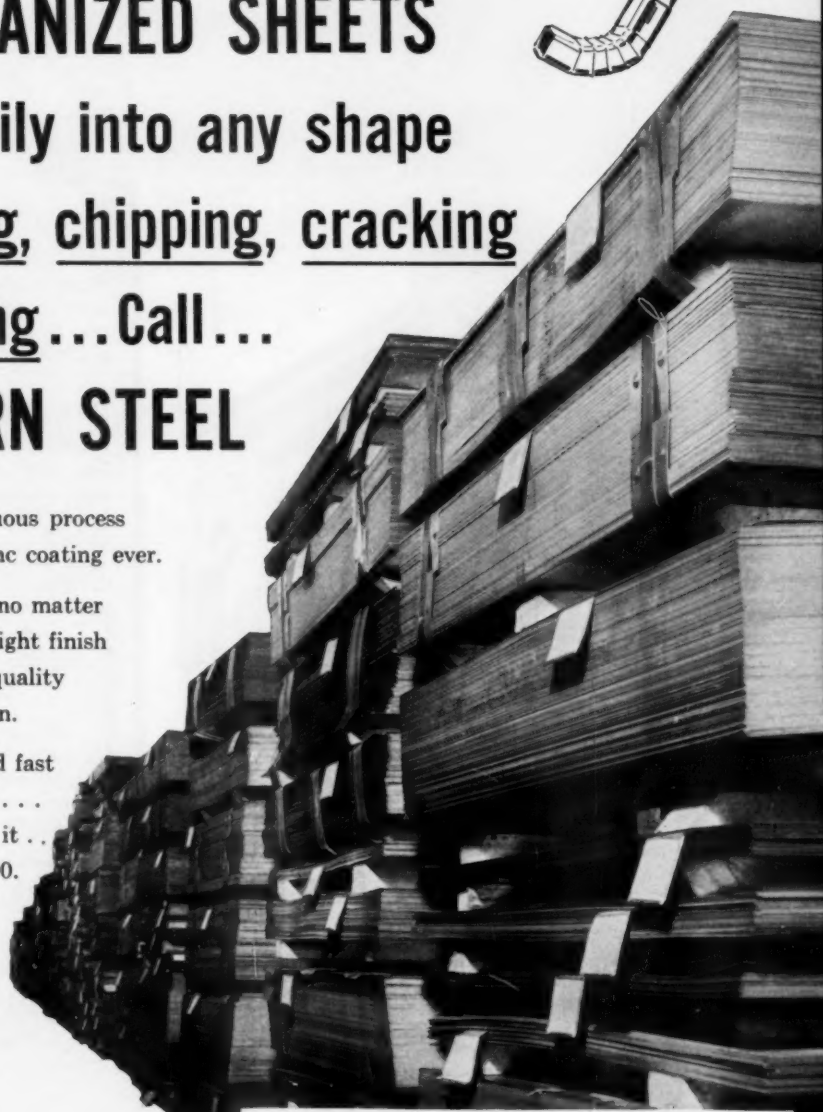
## GREAT WESTERN STEEL

Galvanized by the most modern continuous process these quality sheets have the tightest zinc coating ever.

They will not flake, chip, crack or peel no matter how tough the job. And the sparkling bright finish stays right with the job . . . reflecting quality and permanence for enduring satisfaction.

Our large stocks of galvanized sheets and fast service bring you all the steel you need . . . the way you want it . . . when you want it . . . where you want it. Call HEMlock 4-5800.

**Make GREAT WESTERN  
Your Warehouse for Steel  
Hold Your Inventories Down  
Reduce Your "Cost of Possession"**



Call Great Western: HEMlock 4-5800

**GREAT WESTERN  
STEEL COMPANY**

ESTABLISHED 1918

General Office and Plant:

2300 W. 58th St., Chicago 36, HE 4-5800

Milwaukee Division: 2475 W. Hampton Ave., Hilltop 4-3092

REPRESENTATIVES IN PRINCIPAL MIDWESTERN CITIES

In addition to Galvanized Sheets and Strips and Galvannealed Sheets GREAT WESTERN STEEL carries large stocks of

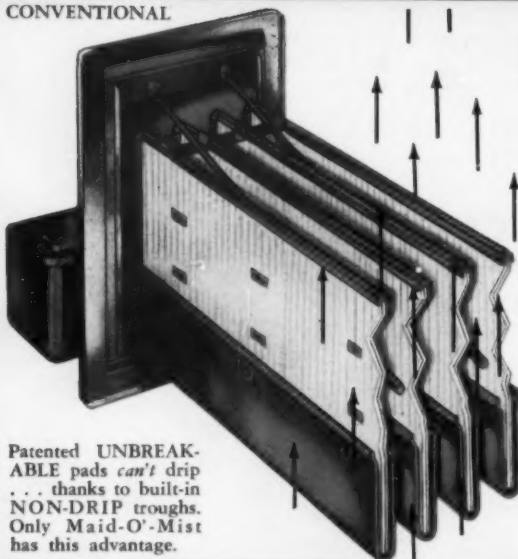
Cold Rolled Sheets  
Hot Rolled Sheets  
Hot Rolled Pickled  
Sheets

Cold Rolled Strip  
Hot Rolled Strip  
Hot Rolled Pickled  
Strip

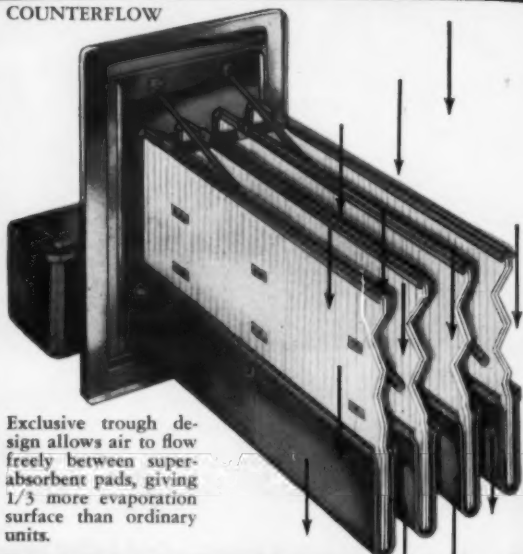
# MORE AND MORE CONTRACTORS ARE INSTALLING MAID-O'-MIST *Automatic* Convector HUMIDIFIERS

Saves *half* the time to INSTALL! Gives a *third* MORE EVAPORATION AREA!  
Has *two-thirds* LESS AIR RESTRICTION IN THE PLENUM!

CONVENTIONAL



COUNTERFLOW



## GIVES MOST FOR LEAST

While a Maid-O'-Mist humidifier gives lasting satisfaction to the customer, it costs very little. Actually, it gives more humidity per dollar cost than any humidifier on the market.

## Fits Both Conventional and Counter Flow Warm Air Furnaces

The only standard unit that does! Perfect for small plenums, easy to install. No flat bottom pan to block flow of air.  $\frac{3}{8}$ " individual troughs, spaced an inch apart to allow free airflow between evaporator pads, give a THIRD MORE EVAPORATING SURFACE.

## Something NEW! RENEWAL KIT

with evaporator pads and valve stem. Easy for home-owner to install himself. Eliminate service calls. Ask your jobber or write us for details.

WRITE FOR FREE CATALOG TODAY.

60% LESS AIR RESTRICTION IN PLENUM

30% MORE EVAPORATION AREA

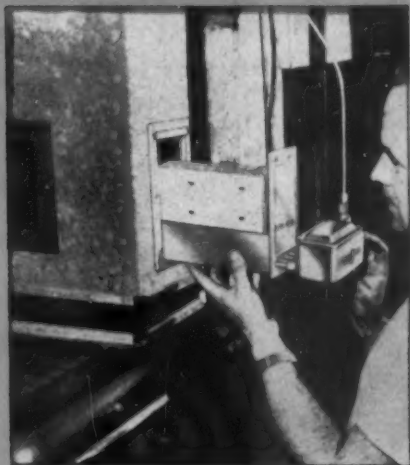
50% LESS INSTALLATION TIME

AUTOMATIC HUMIDIFIERS . . . . . WATERLINE CONTROLS  
AUTO VENTS . . . HEATING AND AIR CONDITIONING SPECIALTIES

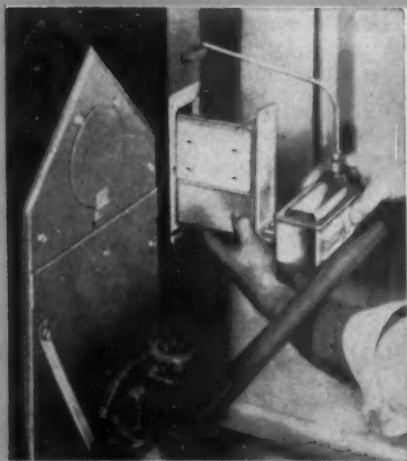
# MAID-O'-MIST, Inc.

3217 NORTH PULASKI ROAD • CHICAGO 41, ILLINOIS

The only standard unit that fits both conventional and counter flow systems



**FOR CONVENTIONAL** warm air furnaces cut opening in plenum and make water connections. 9 sizes available with evaporation capacities of 1 to 10 gals. per day.



**FOR COUNTER FLOW**, because of its narrow trough design, you can install on either side of furnace having 3" minimum air passage.



# For dependable water level control use MAID-O'-MIST FLOAT CONTROL VALVES

Thrifty answer to limited space in  
**HUMIDIFIERS** **AIR CONDITIONERS**  
**PAN FILLERS** **AIR WASHERS**



**No. 51**

## **FAMOUS No. 50 SERIES**

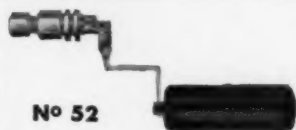
Compact, precision-designed, you can count on MAID-O'-MIST float control valves to effectively meet your water-level control requirements. An acknowledged leader in its advanced engineering, they give faithful performance.

### **No. 51 FLOAT CONTROL VALVE**

Only 5 $\frac{3}{4}$ " long overall, including copper float 2 $\frac{1}{8}$ " in diameter x 1 $\frac{1}{4}$ " deep. Stem and body made of brass . . . valve seat of hard nylon, protected with fine metal screen. Can be fitted in 9/16" hole or screwed directly into tapped opening. Up to 85 lbs. pressure; 1/2 gal. per minute at 50 lb. pressure.

### **No. 52**

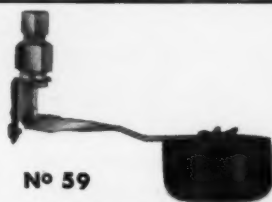
Similar to No. 51, but designed for 1 gal. per minute capacity at 50 lbs. pressure, with pressures to 125 lbs. Overall length, 8", with 1 $\frac{1}{2}$ " x 4 $\frac{1}{8}$ " long float.



**No. 52**

### **No. 59**

Valve is vertically mounted with special bracket to mount on reservoir or pan well above water line. Just 5" long.



**No. 59**

### **No. 6917**

#### **Series Diaphragm Valves**

Heavy duty, large capacity water level controls, rugged and strong. Capacities 1 $\frac{1}{4}$  gal. to 6 gal. per minute.



**No. 69**

Get full information from your jobber or write for catalog today!



# MAID-O'-MIST, Inc.

3217 NORTH PULASKI ROAD • CHICAGO 41, ILL.

## Summer Convention Speakers



Glenn A. Ashburn



Nat N. Leas



James F. Deane

(Continued from page 25)

Mueller Climatrol, and a panel discussion on such subjects as "How and When to Advertise," "Dealer Merchandising Budgets," and "Use of Merchandising Aids."

Representatives from the three West Coast associations will describe activities of their groups. They will include Robert N. Hall, president, Institute of Heating and Air Conditioning Industries; Dar Knowles, executive manager, Warm Air Heating Institute of Northern California, and Donald M. Keefer, president, Portland, Ore., Warm Air Heating and Air Conditioning Association.

Frank L. Meyer, president, Meyer

Furnace Co., and president of NWAHACA, will present the national industry picture. "The Wholesaler's Place in the Warm Air Heating Industry" will be discussed by Glenn A. Ashburn, president, National Heating and Airconditioning Wholesalers Association.

The convention program is under the general chairmanship of James F. Deane, vice president, Tuck-Aire Furnace Co.

### Plan Fall Conference on Artificial Climate, Comfort

LOS ANGELES — Plans for a conference on environmental control as it affects health and comfort are being made by a joint committee representing the University of California at Los Angeles and the Institute of Heating and Air Conditioning Industries.

Subcommittees have begun work on the agenda. As a subtitle for the meetings, the committee adopted "Designing the Artificial Climates for Southern California." A tentative date for the conference has been set for next September.

Architects, builders and engineers will be invited to participate in the conference with industry members. Public health officials will also be asked to take part. The meetings will be held on the university campus.

## Control of Mergers Hits Smaller Firms, U.S. Chamber Says

WASHINGTON, D.C. — Proposals to tighten federal control of corporate mergers will hit small and weak firms hardest, the U. S. Chamber of Commerce told a Congressional subcommittee.

Richard Wagner, Chicago, who spoke for the Chamber, urged recognition of the potential value of mergers which result in diversification of markets and products and mergers which originate with the acquired company.

"In the latter case," he said, "the possibility of merger may play an important part in the development of small business. It is entirely likely that many small business ventures are launched only because the entrepreneurs know that they will have an opportunity to sell on reasonably favorable terms to another member of the industry."

Mr. Wagner also stated that the proposal before the committee provides for unwarranted extension of federal regulation of a broad range of business transactions. He said it would also mean overlapping jurisdiction over law enforcement in the anti-merger field.

### New Booklet Describes Activities of AMCA

DETROIT — A new illustrated booklet, "Activities and Purposes of the Air Moving and Conditioning Association," describes why the trade association was formed and how it functions to benefit industry and the public. Also covered are member companies, officers, directors, and committees. AMCA was organized in January 1956. Free copies are available upon request to Air Moving and Conditioning Association, 2159 Guardian Bldg., Detroit 26.

(More association news on page 32)

### Bates Appointed Director Of Labor Dept. Branch

WASHINGTON, D.C. — L. H. Bates, Tacoma, Wash., has been appointed executive director of training service, Bureau of Apprenticeship and Training, by Secretary of Labor James P. Mitchell. During recent weeks Mr. Bates has been serving as consultant for the Bureau.

In his new post, he will concentrate on working relationships with labor, management, the states, and schools at all levels. He has been closely connected with the apprenticeship program, both in industry and in schools since its inception.



Here's a NEW and VASTLY BETTER Solution to the

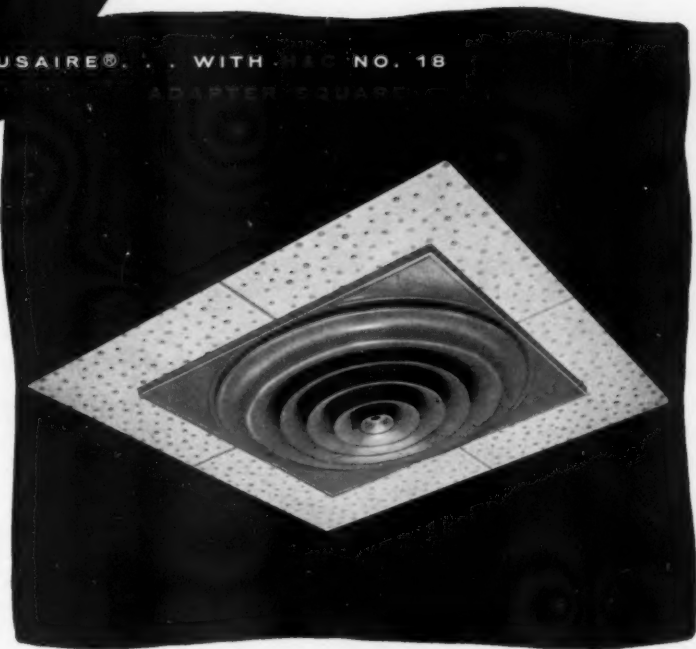
# "ROUND and SQUARE"

Diffuser Problem!



H&C NO. 16 DIFFUSAIRE® . . . WITH H&C NO. 18

With the new H&C ADAPTER SQUARE and either the H&C No. 16 Ceiling Diffusaire (Step-down type) or the H&C No. 15 (Flush type) you're all set to do a bang-up job on each and every installation. Either of these diffusers with the ADAPTER SQUARE blend perfectly with acoustical tile ceilings. Moreover, they'll give you a full 360° diffusion without any extra fittings. They eliminate the necessity of making round to square transitions when using round pipe. They simplify stocking — just one type to carry — and they eliminate the necessity of handling two types of dampers. Standardizing on H&C Ceiling Diffusaires and the new H&C ADAPTER SQUARE will save you time, delight your customers and put money in your jeans. See your H&C Jobbers.



**HART & COOLEY  
MANUFACTURING CO.**

500 EAST EIGHTH ST., HOLLAND, MICHIGAN  
IN CANADA:  
HART & COOLEY MANUFACTURING CO., FORT ERIE, ONTARIO



## Argue Cause of Housing Dip: Tight Money or No Demand?

WASHINGTON, D.C. — New house starts in March continued their downward trend as bankers and builders argued over the cause. The Department of Labor reported that private housing starts in March were at an adjusted rate of 880,000 units per year. This was down from the February annual rate of 910,000 units and was the lowest level since February 1949. Actual private starts in March totaled 75,500 units. In February, 62,500 actual starts were recorded.

George S. Goodyear, president, National Association of Home Builders, declared that the industry is being crushed by an inflexible policy of tight money. He said, "We are laying the ground work for a housing shortage that will plague the country for years to come." He pictured the industry as tottering on the brink of disaster.

On the other hand, Norman Strunk, executive vice president, U. S. Savings and Loan League, laid the blame for the housing dip upon a drop in demand. He reported that

ample funds were available to make home mortgages. He saw an indication that the nation had entered a period which will see a continued easing of housing demand.

In recent months the government has taken several steps designed to boost the home mortgage market. One of the first moves was a bill passed by Congress to increase the funds available to the Federal National Mortgage Association by \$500 million. This agency buys acceptable FHA-insured and VA-guaranteed mortgages from qualified lenders. These purchases provide lenders with more funds for loans.

In a second step the FHA reduced down payment requirements for home buyers by 2 percent. The FHA now requires a down payment of 5 percent on the first \$9000 of FHA

(Continued on page 34)

## Ohio Wholesaler Marks 50th Year in Industry

COLUMBUS, OHIO — The Palmer-Donavin Mfg. Co. here is celebrating its 50th anniversary in the sheet metal industry. The firm is a regional wholesaler of heating, air conditioning and related equipment. They also manufacture sheet metal roofing supplies. A branch warehouse is maintained at Lima, Ohio.

## Increase Noted in Sales Of Anthracite Equipment

NEW YORK CITY — Sales of automatic anthracite equipment for home heating increased for the third consecutive year in 1956, the Anthracite Information Bureau reported. Sales of furnace burner units for warm air heating amounted to 16.8 percent of the total sales volume, the report said.

## Predicts Solar Heat For Home of Future

COLUMBUS, OHIO — As the nation's energy requirements soar, residential heating may shift to solar energy, an article in a publication of the Battelle Memorial Institute predicts.

The author, James A. Eibling, notes that large increases in energy requirements, due to population and per capita energy consumption growth, will force the development of other power sources. In the long run, he says, large-scale electric power generation will probably be produced with nuclear energy. Mineral fuels may best be used primarily in transportation, he adds. Solar energy is best suited to small, immobile installations, such as houses, he declares.

Key to the development of solar energy, Mr. Eibling says, is the need for an economical way to store heat for periods as long as several weeks. He also foresees use of solar energy for residential cooling, hot water heating, and perhaps even domestic refrigeration.

## ARI Suggests Study of Cooling for Classrooms

WASHINGTON, D.C. — The Air-Conditioning and Refrigeration Institute suggested that the National Conference of Governors study cooling for the nation's classrooms to permit year 'round use. The recommendation was prompted by the report that one of the topics before the conference would be year 'round utilization of school facilities as a means of solving the classroom shortage.

George S. Jones, Jr., managing director of ARI, suggested that air conditioning industry representatives be invited to attend the meeting, which is set for June 23-26 in Williamsburg, Va. Mr. Jones said, "I am sure we can provide statistical data that would be of value in the consideration of this problem."

## New Sales Organization Set Up by Worthington

HARRISON, N.J. — The establishment of a new internal sales organization to handle air conditioning business through franchised outlets has been announced by Worthington Corp. M. M. Lawler, vice president of the firm's air conditioning and refrigeration division, revealed that seven district offices will be formed, each manned by a field sales force. They will function separately from the present Worthington district sales offices. The new district headquarters will be in Cleveland, New York, Philadelphia, Los Angeles, Atlanta, Chicago and Houston.

# THEY'RE *Breaking* THE "Sales-Barrier"

## THE ALL-NEW *Luxaire* GAS FIRED AND OIL FIRED FURNACES



Compact!  
Heavy!  
Ruggedly  
Constructed!  
Model illustrated  
has Return  
Air Cabinet  
attached.



Attractive in  
appearance!  
Advanced in  
Design! Completely  
Assembled  
and Wired!



Counterflow  
Models for  
Basementless  
Homes.  
All Sizes —  
available in either  
Gas or Oil!

### Easier to Order . . . Easier to Handle . . . Easier to Install!

They're the sensation of the furnace industry!

The entirely new Luxaire Gas Furnaces and Oil Furnaces are so solidly built and good looking that you may find it hard to believe their low price.

But when you realize that this pricing is made possible through dynamic original design and through extensive retooling of our expanded factories, you will quickly recognize your advantage.

The purpose is to give you new and

better furnaces that are constructed with Luxaire's high standard of quality, but are priced so that you can meet cheap furnace competition with Luxaire excellence.

So, if you have been experiencing a "sales-barrier", you can now break it with Luxaire.

For the jobs that you are now bidding, or that you may have been losing, see your Luxaire jobber for new low prices, now!

### Easier to Sell Than to Compete Against!

THE *Luxaire* C. A. OLSEN MANUFACTURING COMPANY • ELYRIA, OHIO  
HEATING & AIR CONDITIONING UNITS

It's  
*Luxaire*  
too,  
for Record-  
Breaking  
Cooling  
Sales!



2 or 3 Ton  
Combination  
Year 'Round Air  
Conditioner, Gas  
or Oil Fired, Air  
or Water Cooled.



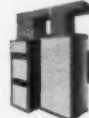
5 Ton Combination  
Year 'Round Air  
Conditioner, Gas  
or Oil Fired, Air  
or Water Cooled.



2 or 3 Ton  
Counterflow  
Combination  
Year 'Round Unit.  
Gas or Oil Fired.  
Air or Water  
Cooled.



2, 3 or 5 Ton Air  
Cooled Add-On  
Summer Air  
Conditioner.  
Air Cooled  
Condenser-  
Compressor Unit  
with choice of  
"V" (Plenum) or  
"Flat" (Duct)  
Cooling Coil.



3 or 5 Ton Water  
Cooled Add-On  
Summer Air  
Conditioner  
shown as installed  
with Winter Air  
Conditioner.



TEST SCHOOL building recently erected in Des Moines will be used to conduct research on heating, cooling and ventilating under actual classroom conditions

### Argue Cause of the House Starts Dip

(Continued from page 32)

appraised value plus 25 percent of the excess.

The House of Representatives passed and sent to the Senate a bill which would expand the VA's program of making direct loans to veterans in rural areas where credit is scarce. In so doing, it turned down a proposed increase in the ceiling on interest rates on VA-guaranteed loans. This measure originated in the House veterans' affairs committee.

The House banking committee later stepped into the picture with a proposed bill of its own. This bill would set up a special preference program for veterans under the FHA program. It would provide \$1 billion of National Service Life Insurance reserve funds for purchasing mortgages under this program. It would also restrict discounts on loans backed by the VA or FHA.

In addition, the banking committee bill would lower FHA minimum down payment requirements to 4 percent on the first \$10,000 of appraised value, 20 percent on the value between \$10,000 and \$16,000, and 30 percent on the value up to \$20,000. The minimum down payment for veterans under this proposal would be one half that for others.

### Manufacturer Conducts Dealer Training Schools

MONROVIA, CALIF. — A series of advanced air conditioning engineering schools are being held throughout the country under a program conducted by Day & Night Mfg. Co. The schools, which are open to interested dealer personnel, will be held in some 25 cities with an estimated total attendance of 350 dealers.

A similar series of schools was conducted last year and many of this year's schools will be held in some of the same cities. This year more advanced techniques will be featured as well as new material. The aim of the schools is to bring the latest industry thinking to the dealer level as rapidly as possible.

### Expand Production of Series 200 Stainless

NEW YORK — The American Iron and Steel Institute reports that, in the face of continued nickel shortages, more stainless steel producers are expanding their production of the Series 200 types of stainless. These new stainless steels — AISI types 201 and 202 — are low in nickel and high in manganese content. They are used in institutional equipment and various architectural applications.

### Two Room School Used as Laboratory To Study Comfort

DES MOINES, IOWA — Classroom comfort conditions are being studied by engineers in a new two classroom school building built here by Lennox Industries, Inc. A special heating and ventilating system is being tested in the building while in actual use by classes from a nearby school district.

The system consists of a residential type of forced air furnace combined with new air handling equipment that mixes outdoor air with recirculated air in the room. Outside air is continually being introduced, but in varying quantities in order to hold temperatures within one degree.

Adequate school room ventilating has long been a problem. The new type system, however, promises to solve it at a substantial cost savings per classroom. The research school building is full-size and complete in every detail.

### U. S. Gas Reserves Register Peak Gain

NEW YORK CITY — Natural gas reserves in the United States were increased 14.1 trillion cu ft during 1956 to an all-time peak of 237.8 trillion cu ft, according to American Gas Association. This represented the greatest recorded annual increase in proved recoverable reserves in the industry's history. The previous record one year gain was 12.8 trillion cu ft reported in 1946.

Natural gas net production last year rose to a record 10.9 trillion cu ft. This production, however, represented only 44 percent of the 25 trillion cu ft which were added to reserves during the year through new discoveries, plus extensions and revisions of earlier estimates.

(More association news on page 41)



SELL

**WESTINGHOUSE**

...the only

**"REALLY-NEW"**

air conditioning line for

1957

**TAKE A LOOK...**

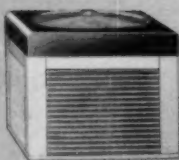




**FOR  
RESIDENTIAL  
SALES!**

**You get**

**...FROM**



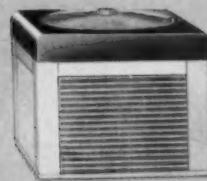
**BUDGET 301**

\*19,000 to 23,000 BTU/Hr.



**SUPER 352**

23,500 to 32,000 BTU/Hr.



**BUDGET 401**

32,000 to 39,000 BTU/Hr.

*\*Lower Figures are ASRE Ratings*

Now, you've got the edge over competitors who *try to sell* all prospects, regardless of need, with old-fashioned 2, 3, and 5 HP units. While other manufacturers give you but 3 inflexible units — Westinghouse gives you 7! You get a complete cooling range from 19,000 to 86,000 BTU's per hour in a twin price line of Budget and Super cooling models. Air cooled, they need no water . . . easy to install outside the house, they waste no living space . . . whisper quiet, they cool

automatically. What's more, they combine with any forced warm air heating system — using the same ducts—to give economical year-round air conditioning at the touch of a finger tip. And remember, these units are perfect for many commercial installations, too. So, wherever you sell, whoever your customer . . . you can price, sell and install the one unit that is "just right" for the job, and you can do it at a profit!

## THE RIGHT COOLING UNIT FOR EVERY HOME AND BUDGET



### EASE-MASTER UNITS

For hide-a-way installation in attic, utility room or suspended from ceiling. Air cooled, delivers 18,000 to 34,000 BTU's per hour.



### FLEX-MASTER UNITS

Ideal for the larger home in extra hot climates. Air or water-cooled, delivers 30,000 to 110,000 BTU's per hour.



### VALUE-MASTER UNITS

Heat and cool — automatically! Available with oil or gas-fired furnace unit. Cooling range 24,000 to 38,000 BTU's per hour. Gas-input 90,000 to 130,000 BTU/Hr., output 84,000 to 112,000 BTU/Hr.

# "just right" cooling

**BUDGET 301 TO SUPER 802!**



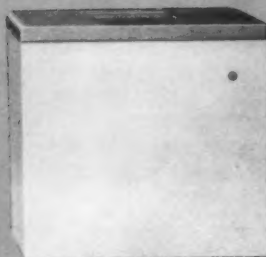
**SUPER 452**

36,500 to 50,000 BTU/Hr.



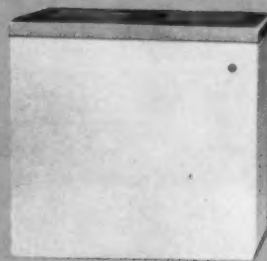
**BUDGET 601**

50,000 to 62,000 BTU/Hr.



**SUPER 652**

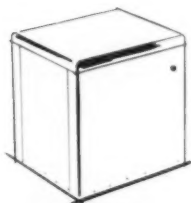
54,500 to 67,000 BTU/Hr.



**SUPER 802**

74,500 to 86,000 BTU/Hr.

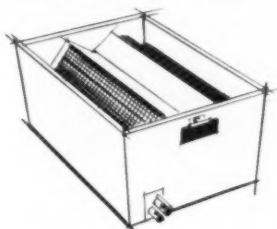
**You don't have to sell too much or too little—  
with Westinghouse you profit with  
"Just Right" cooling capacity!**



## **AIR-COOLED CONDENSING UNITS**

These handsome beige-and-charcoal cabinets house all moving parts—compressor and fan—outside the home. Exhaust air *up and away* from the house for *Whisper quiet* cooling, no shrubby burn. One of these 7 basic units combines with the one best...

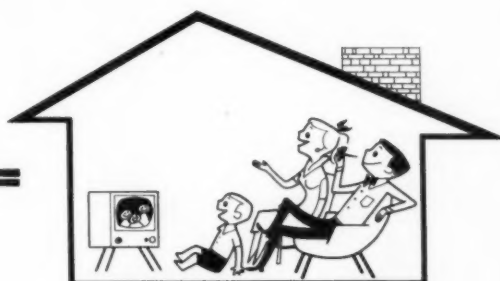
+



## **COOLING COIL**

Vertical, horizontal or blower coil unit—available in a complete range of air handling capacities. To give each of your customers...

=



## **COMPLETE HOME COOLING**

Maximum comfort throughout the house—24 hours a day during hottest summer weather. Masters both heat and humidity as only "Just Right" air conditioning can.

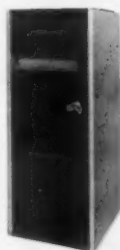
## **...AND AN ALL-NEW GAS AND OIL-FIRED FURNACE LINE!**

These new Westinghouse furnaces are finished in two-tone color to blend with the cooling units. Gas or oil-fired for easy installation in basement, utility room, crawl space or attic... you'll find they meet the specific heating needs of your customers—wherever you sell.



### **NEW BASEMENT UNITS**

Gas or oil-fired... ideal for basement installations where overhead clearance is limited.  
Heating Capacity—BTU/Hr.  
Gas-Fired (Input)  
85,000-200,000  
Oil-Fired (Output)  
85,000-134,000



### **NEW UTILITY UNITS**

Gas or oil-fired... they are "File-Cabinet-Size." Approved for zero clearance installations in closets or utility rooms.  
Heating Capacity—BTU/Hr.  
Gas-Fired (Input)  
85,000-150,000  
Oil-Fired (Output)  
85,000-123,000



### **NEW COUNTER- FLOW UNITS**

Oil-fired... specifically designed for perimeter type residential heating systems.  
Heating Capacity—BTU/Hr.  
Gas-Fired (Input)  
85,000-125,000  
Oil-Fired (Output)  
85,000-123,000



### **NEW HORIZONTAL UNITS**

Gas-fired... need no floor space. Mount in attics, crawl spaces, closets or suspended from ceilings.  
Heating Capacity—BTU/Hr.  
Gas-Fired (Input) 80,000-140,000

**PLUS...**



**FOR COMMERCIAL  
SALES!**

**YOU GET ALL THE**





# Excitement of Color

**Plus the Industry's Quietest Air Conditioner... Air or Water-cooled**

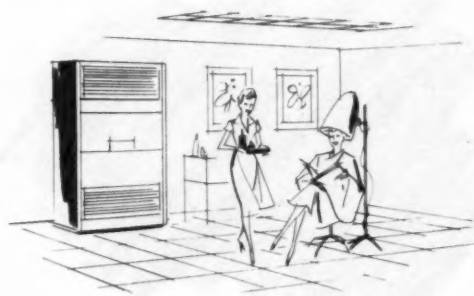
Now, you can have the right color combination for every customer . . . 15 combinations of two-tone color and harmonizing trim to blend with the interior decor of any store or office. Smartly styled in smoothly flowing lines, the new Style-

Master units can be easily installed in a minimum of space — with or without ducts. They deliver maximum cool comfort quietly and automatically — with style and beauty.

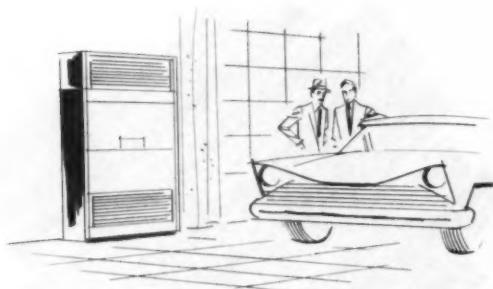
**NOW, YOU CAN MATCH THE DECOR OF...**



**MEN'S SHOPS**



**BEAUTY PARLORS**



**AUTOMOBILE SHOWROOMS**



**FURNITURE STORES**

**- AND MORE...**



#### **FLEX-MASTER**

Includes all the big cooling features of the Style-Master... comes in two-tone beige and charcoal color combination.



#### **CUSTOM-MASTER**

For extra large cooling requirements in store, office or factory.

**EVERYTHING  
YOU NEED...**

# For the Most Profitable Air Conditioning Season Ever!

## WESTINGHOUSE GIVES YOU:

- 1. Fast Delivery** — direct-from-factory or from distributor nearest you. You get the unit you want, where you want it — when you want it.
- 2. Sales Training** — for you and your staff. Consumer selling literature, visual sales presentation for your use, heat-load estimating form, duct calculators — everything you need.
- 3. Technical Aid** — from factory sales engineers. They will help you solve any air conditioning problem . . . show you how to get maximum efficiency with minimum effort.
- 4. Finance Plans** — to fit your sales and business needs.
- 5. Advertising** — where it counts most — in your own local selling area. Westinghouse backs you with powerful regional advertising, plus — a liberal co-op ad program.
- 6. Sales Promotion** — that builds your name and business. Westinghouse brings you the plan and materials for your own dynamic promotion program.
- 7. Profits** — with the only "Really-New" family in the air conditioning industry — for every residential and commercial prospect.

For further information on the 1957  
Westinghouse line, write:

Westinghouse Air Conditioning Div.  
Dept. 2 E  
P. O. Box 510  
Staunton, Virginia

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

*Tune in TV's top dramatic show. . . Westinghouse Studio One.*

**YOU CAN BE SURE...IF IT'S**  
**Westinghouse**

AIR CONDITIONING DIVISION      STAUNTON, VIRGINIA

## GAMA Elects New Officers; C. V. Coons to Be President

WHITE SULPHUR SPRINGS, W.VA.— Clifford V. Coons, executive vice president, Rheem Manufacturing Co., was elected president of the Gas Appliance Manufacturers Association at

its 22nd annual meeting held here April 8-10.

Mr. Coons, now vice president of the group, will take office in October, succeeding Julius Klein, president, Caloric Appliance Corp.

Other officers elected were: Edward A. Norman, Jr., president, Norman Products Co., as first vice president, and Wendell C. Davis, president, Cribben and Sexton Co., Inc., as second vice president.

Newly elected division chairmen and vice chairmen were announced as follows:

Automatic controls division: S. L. Kile, executive assistant, Baso, Inc., as chairman, and Fred Weldon, regional sales manager, General Controls Co., as vice chairman.

Gas appliance regulator division: Wayne Schutmaat, design engineer, Penn Controls, Inc., as chairman, and Frank Fiedler, Jr., sales manager, Thermac Co., as vice chairman.

Gas conversion burner division: H. P. Mueller, Jr., sales vice president, Mueller Climatrol, as chairman, and Charles R. Reichelderfer, director of engineering, Waterman-Waterbury Co., as vice chairman.

Gas furnace division: E. P. Hayes, vice president, C. A. Olsen Mfg. Co., as chairman, and E. W. Gettinger, products engineer, American Furnace Co., as vice chairman.

Gas incinerator division: William R. Hebert, vice president, Calcinator Corp., as chairman, and E. O. Olsen, national sales manager, Bowser, Inc., Incinerator Div., as vice chairman.

Gas unit heater and duct furnace division: Robin Bell, Surface Combustion Corp., as chairman, and W. R. McMahon, chief engineer, Modine Mfg. Co., as vice chairman.

Gas wall and floor furnace division: A. J. Horne, Day and Night Div., Carrier Corp., as chairman, and Robert Putman, vice president,

## Test Homes Show Comfort Planning Results in Savings

TOLEDO, OHIO — A study of 172 houses indicates that substantial savings in heating and cooling costs are possible when homes are built in accord with comfort engineering principles.

Owens-Corning Fiberglas Corp. is conducting the test program with the cooperation of utilities and builders in 29 states. Preliminary figures compiled on 120 homes in the program show that savings of as high as 25 percent or more can be achieved in a comfort engineered house as compared with the same house built to meet only minimum FHA requirements.

Among the comfort engineering principles applied are: use of maximum insulation, adequate attic ventilation, and whenever possible, proper orientation of house on lot so that large glass areas face north.

First actual figures for a complete season will be available in the fall of 1957 when statistics for an air conditioned year will be compiled. It is anticipated that figures for a complete heating season will be ready in the late spring of 1958.

The test program was inspired by a statement made by a former U.S. housing official that the average American house of 1000 sq ft should be heated and cooled, all year, for an average of \$10 a month. For this test the average floor space was raised to 1200 sq ft, which is the average in today's homes.

Quaker Heating Div., Florence Stove Co., as vice chairman.

Gas vent and chimney division: B. A. Johnson, vice president, Condensation Engineering Corp., as chairman, and William L. Morgan, director of engineering, American Metal Products Co., as vice chairman.

## Dealer Promotion Program Launched

MILWAUKEE — A promotion program for dealers designed to show how to advertise, merchandise and sell furnaces and summer air conditioning equipment has been launched by Mueller-Climatrol. The program calls for pilot operations to be set up in 40 cities located throughout the country.

The individual dealers who participate will provide case histories of how to merchandise and sell. Their profit and sales records will give a graphic picture of the success of an intensified promotion program.

In announcing the 40 city promotion program, H. P. Mueller, Jr., vice president in charge of sales, blamed the present state of instability in the industry on the failure to solve the problems of merchandising and selling.

"Dealer organizations," he said, "for the most part, have taken little action to use modern merchandising and selling means to get their products into use." He noted a recent survey showing that 80 percent of the owners of central cooling systems had to call in the dealer, instead of the dealer or a salesman first contacting them.

The new promotion program is the second stage of a program that was started two years ago with the "test city" study made in Terre Haute, Ind. In that campaign, the test dealer increased his net profit 40 percent and almost doubled his business volume in one year.

Gasaver and  
Oilsaver Furnaces



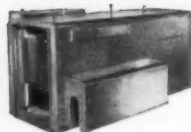
**for the industry's most**

DeLuxe Gas  
& Oil Furnaces



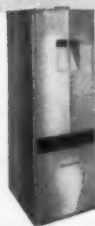
**complete line of heating and**

Super Gas,  
Oil & Coal Furnaces



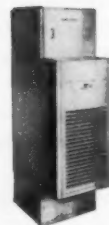
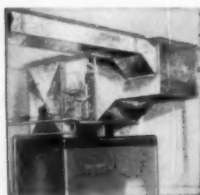
**cooling equipment backed by**

Special Gas  
& Oil Furnaces



**strong consumer promotion . . .**

Wethermatic  
Airefrigeration  
Waterless Cooling Units



**choose**

**WILLIAMSON**



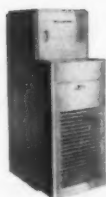


Blue-Gray Metalescent Finish

- *New Designs*
- *New Models*
- *New Colors*



Two-tone Hammer Finish Green



Gleaming White Enamel



As Advertised in Leading Magazines

# **THE WILLIAMSON COMPANY**

3310 B-5 Madison Rd.

Cincinnati 9, Ohio

Gentlemen:

Please send me information on the following:

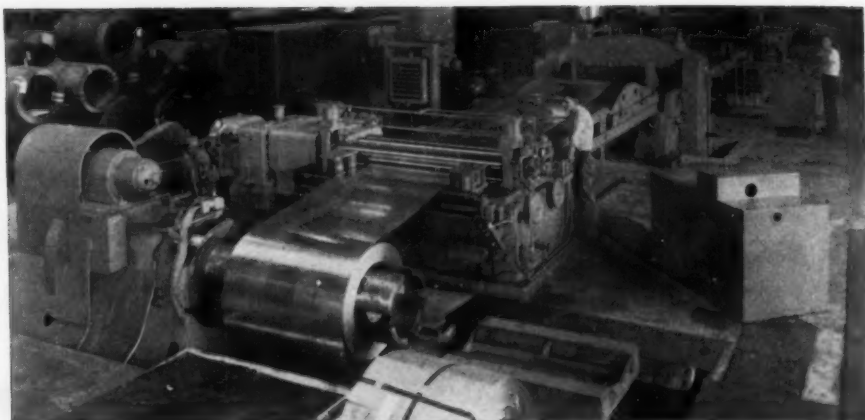
- ☐ Heating Equipment
- ☐ Cooling Equipment
- ☐ Duct, Pipe and Fittings

Name.....Title.....

Firm.....

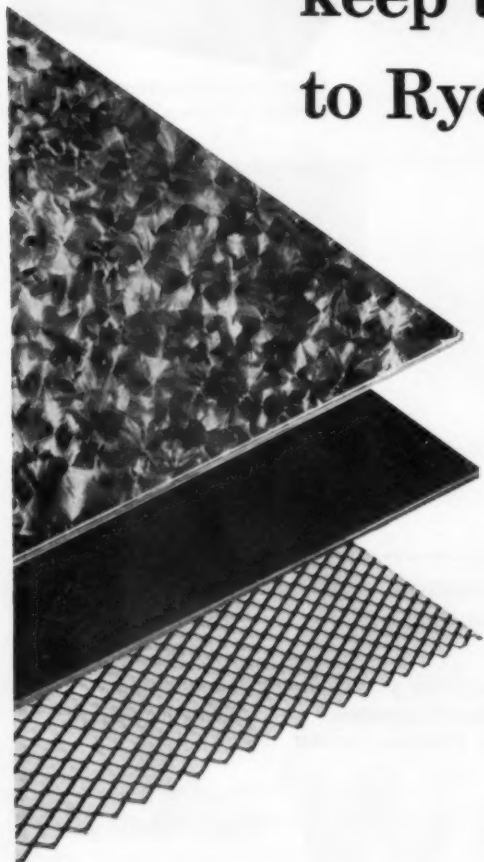
Address.....

City.....Zone.....State.....



**SHEET METAL MEN TELL US . . .**

## **3 major reasons keep them coming back to Ryerson:**



- 1. Biggest stocks—nobody comes even close to the size and variety of Ryerson inventories.**
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**Principal products in stock:** Sheets of every kind—carbon steel, stainless, expanded metal, etc., bars and band iron, tubing, angles, channels, etc.

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • WALLINGFORD, CONN. • PHILADELPHIA • CHARLOTTE • CINCINNATI  
CLEVELAND • DETROIT • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

AMERICAN ARTISAN PROPOSED, in its February editorial, that firsthand experience be employed as the major tool to sell summer air conditioning. We suggested that, for 1957, "every dealer-contractor and every manufacturer in this growing, important air conditioning business set up a program to assure that every one who has anything to do with the sale and promotion of home air conditioning will live in an air conditioned home himself before the year is up."

We took the position, in our editorial, that those who live in an air conditioned environment are in a strong position to tell others about their experiences — how they eat, sleep, relax and feel better during hot weather because of air conditioning.

We are pleased to report that this idea is catching on in many quarters. For example, a recent issue of the National Warm Air Heating and Air Conditioning Association's bulletin presented this same point of view. The article pointed out that a dealer could use the cooling system in his own home as a sample of his craftsmanship. The bulletin compared the value as a merchandising tool of such an installation to the display techniques used by artisans of the past when they placed samples of their hand made products in the windows of their shops.

Such a sample was known as a "masterpiece." We feel that this term can be aptly applied to the year 'round air conditioning system installed in a dealer's own house. There are a number of dealers using the systems in their homes as examples of their ability to install equipment that will provide the degree of comfort people are entitled to expect.

Too, a major manufacturer has launched a plan to get its dealers to install cooling systems in their homes before June 1. Its vice president in charge of sales said, "The time has come for all dealers seeking to win a greater acceptance of residential air conditioning to know its benefits firsthand."

The Air-Conditioning and Refrigeration Institute is also promoting the idea. ARI reprinted the Artisan editorial for distribution to its entire membership.

A St. Paul dealer told us the other day that, after reading the Artisan editorial, he decided to add cooling to the heating system he was specifying for his new home.

These examples — and many more indications from the industry through letters and conversations — make us feel that this proposal, when followed through by dealers at the local level, can make 1957 the largest volume year in the history of the residential air conditioning industry. The conviction of firsthand air conditioning experience will do much to keep the sales rolling in.

So — as we said in February — let's put our own houses in order! By that, we mean let's air condition them — now, for this summer! Every dealer-contractor selling and installing home air conditioning ought to live in an air conditioned home. So should his salesmen and his other employees. And so should every sales and marketing executive and manufacturer and wholesaler salesman in the air conditioning industry.



## Artisan's Idea

### Gets

## Wide Backing

**This month's editorial again points out the need for firsthand experience to sell cooling. Here is a story that proves the point**

*This dealer believes that . . .*

## Cooling Sales Begin at Home

"How CAN YOU expect to do a good job of talking summer air conditioning to a customer unless you have had the experience of living with it in your own home?" asks Bud Strong of S & W Heating Co., Chicago. When he built his new home last year he equipped it with year 'round air conditioning. The company's shop and office has been air conditioned for four years. So you can see Bud Strong has had a lot of first hand experience.

"Air conditioning in your home," Mr. Strong continues, "not only gives you a fountain of knowledge to draw upon in selling comfort, it also gives you first hand knowledge of costs." Mr. Strong has found that cooling prospects frequently ask whether or not he has cooling in his own home. Before his new house was completed he had to carefully explain that he would soon be enjoying it and at the same time mention that his office and shop were cooled in the summer.

Mr. Strong finds that interest in summer air conditioning is growing. More people are asking about it and want to know how much it costs. The company's policy, however, is never to give a price until the job has been engineered and designed.

### **Cover Sales Points First**

"When the plans for the installation are drawn up you have something to show a customer. You're prepared to cover the important features and sales points before mentioning price," he explains.

About half of the people who show interest in summer cooling want to see an actual installation in a home before buying. If they specifically ask to see it, Mr. Strong shows them the installation in his own home. However, he generally feels it is more impressive to show them cooling equipment in the home of another customer. The prospects then can feel more assured that this is the type of installation they will be getting, and it gives them a chance to talk with a cooling equipment owner.

*That's why he has*

"It is interesting to me," Mr. Strong says, "that every customer who has asked to see an installation has eventually bought cooling equipment."

### **Most Business From Past Customers**

S & W Heating has been established on the northwest side of Chicago for 35 years. Bud Strong's father, Sam, who started the business, is well known in the area. As a result, and because the company has always insisted on quality and customer satisfaction, most of the company's business is from past customers or recommendations.

The company does a substantial portion of new house business. It handles few big projects, and the bulk of the new house work is for builders who handle only a few houses at a time.

So far, Mr. Strong has found the major market for cooling in the more expensive homes and in homes that are from five to ten years old. However, he feels that the market for summer air conditioning is ripe for some extensive promotion effort.

When cooling equipment is installed in a home, Mr. Strong has noted that interest in the neighborhood is greatly built up. "It's the same as when your neighbor gets a new car or even when the boy next door gets a new bike," he says. "It starts people thinking about what they could do in their own homes."

Mr. Strong feels it is important in selling cooling to try to discover whether the man or his wife is the one who is the most interested. Frequently, he has found, one or the other is only lukewarm toward the idea. Often





EXPLANATION of what makes their home cooling system tick is given by Bud Strong to his wife. Studding is for basement game room now under construction

OFFICE and shop have been cooled for four years, providing comfort for customers and employees. Note emphasis on air conditioning in sign



## *cooling in his home and in his office*

when a woman is opposed it is because she wears lighter clothing. When such a difference of opinion is discovered, a special effort should be made to overcome the objections of the disinterested party.

### **Comfort Is The Thing To Sell**

Although allergies and hay fever are a frequent reason for many air conditioning sales, Mr. Strong believes that comfort is the most important thing to sell.

New house builders are still reluctant to install cooling equipment before a house is sold, Mr. Strong reports. However, they are interested in using summer air con-

ditioning as a selling feature and therefore are willing to have heating installations set up for add-on equipment.

Most of the company's summer air conditioning installations have used water-cooled equipment, since water in Chicago has not been a major problem. Recently, however, he has noticed a trend to more air cooled units.

The company makes a special effort to service all of its cooling installations during the first year following installation. This is done to assure customer satisfaction. Mr. Strong has noted that there are fewer customer complaints on cooling than on heating. Most complaints on cooling arise because the customer is using his equipment improperly.



PRICES ARE never quoted until a job has been laid out and estimated. This way he has something to show before talking price



ABOUT HALF of the customers ask to see an actual cooling installation. The remainder are satisfied to look at displays or literature



MAIN SUPPLY DUCT was hung from hall ceiling on each floor, then furred in. Hall serves as return air plenum

## 18 Zone Cooling Modernizes a 9 Story Hotel

*... for \$293 per room*

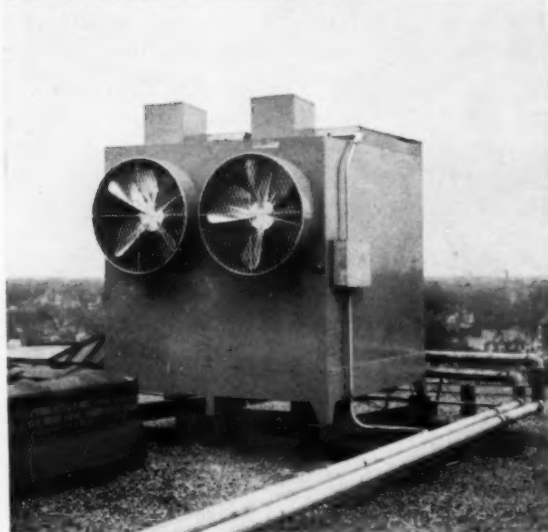
**Dividing each floor into two zones supplied by 10 ton packaged units kept hotel open during work and provides correct amount of conditioned air for each room through graduated trunk system**

EIGHTEEN 10 ton package air conditioning units are installed in the nine story Leland hotel, Springfield, Ill. Two units serve two zones on each floor of the ell shaped structure.

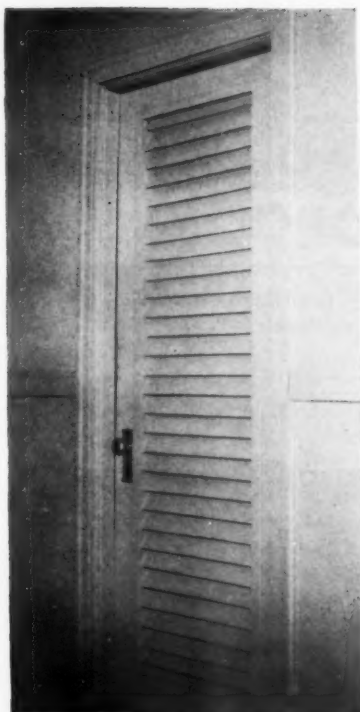
The use of two zones per floor made it possible to close off the area being worked on for the required time to cut wall openings for the supply air ducts and to install door exit grilles.

On each floor one unit is installed in the chamber maid's service room and the other is in a service corridor at one end of the wing.

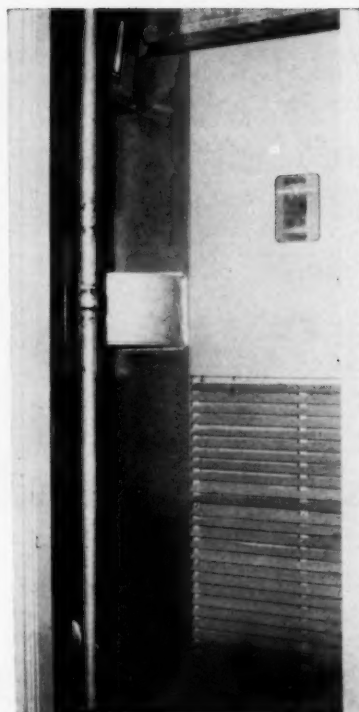
Conditioned air is discharged into a graduated trunk system, with takeoffs to each room. After the duct system



INDUCED DRAFT COOLING TOWER, one of two, is installed on ninth story roof. The other is on a three-story wing roof



LOUVERED DOORS permit air from conditioned rooms to enter halls, from which it returns to units for mixing with outside air



EQUIPMENT ROOM — two on each floor — contains 10 ton unit and panel board with switches, starters, and controls



was fastened to the ceiling of the hall, a drop ceiling was installed. Return air passes from conditioned rooms through door louvers into the hall, which serves as a return plenum from which the package unit draws its supply air to mix with outdoor air brought in to comply with the ventilation code.

The problem of obtaining a supply of outside air was solved by installing an air duct along one wall of the elevator corridor to the outside wall. The masonry wall was broken away and outside grilles with louvers and screens were installed. This duct and its plaster covering reduced the elevator corridor's width by only 12 in. and did not reduce its capacity to any noticeable degree.

### Install Additional Power Supply

The increase in power demand required an additional power supply from the utility company's main cable which, after entering the hotel's power panel room, was distributed to each floor through its own cable. One cable

was brought up the elevator shaft and fed under the floor into the machinery room where a panel board was installed for switches, starters, and controls. A second power cable was carried through the service shaft to the service corridor where the second unit for each floor is installed.

After calculating the water volume for a waste water system, it was decided that considerable saving could be made by using induced draft cooling towers. Two towers are installed on the roof, one on the ninth story roof and one on the roof of a three-story wing. Main line piping forms a closed circuit from which supply and return connections for each package unit are taken.

### Make Installation Over a Three Year Period

The entire installation was spaced over a three year period, with about one-third of the hotel being completed each year. This permitted work to be done at times most convenient to the hotel operators.

The cost analysis of the project is shown in Table 1.

After one season's operation, the hotel manager wrote: "... It has been 100 percent satisfactory. Mechanically, it has been trouble free; and from a performance standpoint, it has very adequately air conditioned the rooms with cool, fresh, dehumidified, dust-free air. In fact, one can almost smell the freshness in the rooms and corridors..."

The system was designed and engineered by Automatic Heating Supply, Inc., and installed by L and L Heating and Air Conditioning, Inc.

TABLE 1—COST ANALYSIS prepared for installation and operation of package air conditioning system, consisting of 18 10-ton units, in the Leland hotel, Springfield, Ill.

Total cost per room, including equipment, tower, ductwork, plumbing, and wiring .....	\$292.67
Estimated added yearly revenue, \$1.00 per room per day .....	\$105.00
Estimated cost of operation per room per year, electricity and water* .....	\$9.25
Net added revenue per room per year .....	\$96.25
Approximate number of years to amortize investment .....	Three
*Cost of operations based on 7 cents per 100 cu ft of water; 1 cent per kw of electricity.	



## COOLING DEALERS' HANDBOOK

How to Solve Engineering  
and Installation Problems  
in Residential Cooling

# You Can't Prevent Noise

... in cooling systems—sound generation is  
inherent in operation of almost any machinery

# But You Can Control It

... so it doesn't reach and disturb occupants,  
by following these suggestions for interrupting  
vibration transmission

**By S. W. Reid**  
**Air Conditioning Engineer**  
**Gilbert Associates, Inc.**

NOISE CONTROL is a very important consideration in the design of air conditioning systems since noise-generating capacity is an inherent characteristic of many essential components of such systems. It is not possible to operate mechanical equipment such as motors, fans, pumps and

compressors without an associated production of noise. It is not possible to circulate refrigerant, water or air through conduits without producing some noise. Fortunately, however, it is possible to confine or control noise to the extent that it is not an objectionable factor. The air conditioning dealer should be well enough informed about noise problems to be able to anticipate them and take the required precautions to keep them from affecting the final job.

Any vibration which stimulates the auditory nerves is broadly classified as a sound. Sounds that have a sustained and simple character and do not seem to be a mixture of various different sounds are called tones or musical sounds. Abrupt and sudden sounds that do not last long enough to convey any idea of musical pitch, or mixtures of discordant sounds, are termed noises.

Sound is communicated by compressional waves traveling through a



material medium, in most cases, air. Many of us recall the classical high school physics demonstration wherein a ringing alarm clock is placed in an air tight glass container. As the air is pumped from the vessel, the bell sound diminishes to nothing even though the clapper remains in full action. This experiment proves that sound waves do not travel in a vacuum. Air or some other carrier must be available to transport them away from their source.

Sound originates when a vibration sets up pulsations which travel through the air and create corresponding pulsations in the ear. The degree to which the air is disturbed by the vibrating body, as detected by the ear, is commonly referred to as the intensity of the sound. The threshold of audibility for the average human ear at a frequency of 1000 cycles per second is used as the starting point for measuring noise intensity. A sound meeting the above requirements would be assigned a sound intensity level of zero decibels. Sound measurements in decibels are always related to the zero level of reference.

### Decibel Scale Rates Sounds

An increase or decrease of loudness to the extent of one decibel is the smallest change that can be detected by the human ear under certain defined conditions. A change in sound level of from 1 to 3 decibels can generally be tolerated without objection. The decibel scale ranges from zero, where no sound can be detected, to 120, where sound intensity is so great it is painful, and even higher. Normal residential noises usually fall into the range from 35 to 55 decibels whereas commercial spaces such as general offices, restaurants, tap rooms, etc. will have levels in the 55 to 70 decibel range.

Decibels cannot be added. If the noise level produced by a certain machine in a room were recorded by a sound meter as 50 decibels, addition of a second identical machine would not cause the meter to read 100 decibels. In order to estimate the resultant noise level, it is necessary to find

**TABLE 1—SOUND LEVELS, rated in decibels and related to the reaction of the human ear, range from apparent silence beyond the point of pain**

Example of Sound Level	Relative Energy	Decibels
Boiler factory	100,000,000,000	110
Pneumatic hammer at 10 ft	10,000,000,000	100
Fire siren at 75 ft	1,000,000,000	90
Average machine shop	100,000,000	80
Average factory	10,000,000	70
Department store	1,000,000	60
Moderate restaurant clatter	100,000	50
School class room	10,000	40
Quiet residence	1,000	30
Whisper	100	20
Breathing through nose	10	10
Threshold of audibility	1	0

the equivalent relative sound energy produced by each machine, add these values, and then find the decibel value corresponding to double the original energy. In the example, the final decibel reading might be about 53. Table 1 shows the relationship between decibels and sound energy as related to familiar space uses and sounds.

### 'Quiet' Is Relative

As pointed out previously, all sound intensity is related to a zero level below which sound cannot be detected by the ear. For practical purposes, one might say that sound is ever present in our daily experience. As a matter of fact, it is very difficult to build an absolutely soundless room. Most "soundproof" rooms merely reduce the room sound level below the level produced by the source of the particular noise to be subdued, so that, by comparison, the room is quiet. By this reasoning, one concludes that whether or not a disturbance can be termed a noise is largely a matter of whether or not it can be heard above the general level of background noise. The ticking of a pocket watch on a table can scarcely be detected during normal daytime home activity, but it can become very distracting during the still of the night. In this case, nothing has changed but the background sound level.

The approach to solving noise problems generated by an air conditioning system is more one of control than of prevention. The reasons for this are both theoretical and practical. It is theoretically impossible to prevent the generation of noise by some equipment, and it is frequently impractical to design, select or install components so the noise produced is within tolerable levels.

### Two Sources in Cooling

Noise control problems in an air conditioning installation fall into two general categories. One has to do with equipment; the other has to do with the air distribution system. Both are common noise sources.

The responsibility for equipment generated noise may rest with the manufacturer in the case of the factory assembled, self-contained unit. Steady progress is being made in the use of vibration absorbers and in techniques for mounting rotative components such as compressors, fans, pumps and motors. More attention is being directed to blower and fan design from the standpoint of noise. Better balancing procedures are being used. Mufflers are employed to reduce compressor discharge noise. Cabinets are given acoustical treatment by damping to reduce vibration, by gasketing and by the application of sound absorbing material. Sound test chambers are

**TABLE 2—AIR DISTRIBUTION** systems should be designed with noise as a major consideration. Velocities for various components of duct systems in different applications are reprinted by permission from Heating Ventilating Air Conditioning Guide 1956, Chapter 32

Designation	Recommended velocities, fpm			Maximum velocities, fpm		
	Residences	Schools, theaters, public buildings	Industrial buildings	Residences	Schools, theaters, public buildings	Industrial buildings
Outside air intakes*	500	500	500	800	900	1200
Filters*	250	300	350	300	350	350
Heating coils*	450	500	600	500	600	700
Air washers	500	500	500	500	500	500
Suction connections	700	800	1000	900	1000	1400
Fan outlets	1000-1600	1300-2000	1600-2400	1700	1500-2200	1700-2800
Main ducts	700-900	1000-1300	1200-1800	800-1200	1100-1600	1300-2200
Branch ducts	600	600-900	800-1000	700-1000	800-1300	1000-1800
Branch risers	500	600-700	800	650-800	800-1200	1000-1600

\*These velocities are for total face area, not net free area; other velocities in table are for net free area.

#### THIS CONTINUING SERIES OF ARTICLES COVERS . . .

. . . all aspects of residential cooling, beginning in the August, 1952 Artisan with a complete rundown on:

#### FUNDAMENTALS . . .

. . . in a series of 20 articles which described the basic operating conditions of residential cooling equipment. Next, we turned to:

#### SPECIFIC PROBLEMS . . .

. . . of maintenance, service, installation and management, describing new techniques and presenting pointers on solving problems common to residential cooling. The current series describes:

#### CASE HISTORIES . . .

. . . and known problems which have actually been experienced and reported by dealers. Engineering, installing and servicing of cooling systems and their components are discussed by the author in answer to actual problems expressed by industry members.

now standard in many production lines. Quietly operating equipment should not be taken for granted. A great deal of unseen effort makes it possible.

#### Must Know Characteristics

The dealer who combines components to build his cooling system is faced with many of the same problems which the manufacturer faces in building his package. He must be familiar with the sound characteristics of the equipment he chooses. He should know, for instance, that a fan will have the lowest sound level at or near its peak static efficiency for a given speed and that for a given fan applied to a fixed system, noise will increase with speed.

In addition to his care in the choice of fans, the dealer must also consider noise characteristics in his selection of other rotative equipment such as pumps and compressors. The trend toward higher speeds produces economies, but in many cases it makes noise control a more severe problem.

To apply equipment properly, the dealer must be familiar with good practice in mounting and connecting it. Application, in many cases, has more of an effect on noise generation than does the care given to selection. Common sense is a guide.

We wouldn't expect a cooling unit mounted on a flimsy wooden platform to operate as quietly as one mounted solidly on a concrete floor. Nor would we expect a fan section hung from overhead wooden beams to operate as quietly as one bolted securely to a floor-mounted unit.

#### Isolation Controls Transmission

There are many jobs where equipment must be installed near occupied spaces or in a manner that is not the most desirable. In either case, noise and vibration transmission through the building structure must be controlled by isolation. Engineered mountings are available to reduce the energy transmitted between equipment and the supporting structure. The proper choice of such mountings is a specialized field, so the dealer may want to seek the advice of men who are familiar with it. Equipment isolation does not stop with the mountings alone. Flexible sections must be installed in duct work, piping and electrical conduit which connects to it. Driven equipment and the driver should always be mounted together on a rigid isolated frame.

Proper attention to the construction of the utility room will avoid some noise problems that have been encountered in actual residential ap-

plications. Plywood walls of a utility closet require a layer of sound deadening material to keep them from becoming sounding boards which actually amplify noise. Attic and basement installations directly above or below bed rooms must be given particular attention to prevent noise transmission. Where return grilles are used in utility closet walls, equipment noise has been reduced by constructing a two-bend baffle of sound absorbing material.

### Observe Velocity Limits

Noise in a distribution system is generated by the turbulence or eddying of air as it passes through ducts and outlets. Duct noise can generally be avoided by designing for velocities within the limits of those recommended by the American Society of Heating and Air Conditioning Engineers as shown in Table 2. Outlet noise can likewise be subdued by selecting grilles, registers and diffusers in accordance with manufacturers' recommendations.

The proper selection of duct and outlet sizes from a noise standpoint doesn't guarantee that sound will not be carried to the conditioned space from the equipment. It will not prevent transmission of duct vibrations, voices and other household noises between rooms connected by the duct system; nor will it keep external sounds which penetrate the duct wall from being transmitted to spaces where they are objectionable.

Many considerations affect the selection of duct air velocities and the layout of duct systems. It is not always possible or practical to design within the limits of quiet performance, or to lay out a system which will avoid other noise transmission problems as outlined above. However, there are corrective measures for most situations.

### Start Noise Control in Plenum

The best place to solve the problem of equipment noise transmission is the air plenum. The interior surface area of the plenum should be at least ten times that of the fan

discharge area. The inside should be lined with insulating material which is suitably coated and fastened so that it will not be torn loose by the air movement.

Sounds picked up by ducts which pass through noisy rooms can be reduced by applying insulation either inside or outside the duct. Inside lining is recommended since it absorbs external noise as well as that produced by the equipment. Duct sizes should be increased to allow for the lining where it is used.

The trend toward higher velocities in air distribution has led to development of sound boxes which can be introduced near the ends of duct runs to decrease noise that arises from this cause. These chambers contain sound absorbing baffles which are arranged for efficient performance. Various homemade sound chambers can be constructed from designs that are available, but the advantage of the commercial unit is that ratings are well established, not only for sound absorbing efficiency, but also for pressure drop.

### Avoid Duct Transmission

Transmission of sound from one room to another can be avoided by lining stack heads with insulation. This material absorbs sound which enters the supply grille or register and

prevents it from carrying back into the duct system and being transmitted to other rooms. The same type of treatment may be used in back of return grilles.

There are several miscellaneous potential sources of noise we have not yet noted. One which is especially prevalent in duct systems used for warm air heating is the expansion and contraction of the sheet metal due to temperature changes. This possibility should be taken into account by the dealer in laying out sections and planning the method of hanging for long duct runs. Flexible joints used to connect duct work to equipment can also be used in these runs to subdue expansion noises.

### Pipes Are Noise Sources

Another annoying source of noise is water piping. Where pipes run through or near conditioned spaces, low velocities should be chosen to assure quietness. Air in water lines makes a noticeable gurgling sound. This can occur under certain arrangements in systems which employ cooling towers. To avoid such trouble, pumps should be located so suction lines are always full of water. Water regulating valves can produce a hissing sound if they are required to throttle severely. Such noise can be controlled by installing reducing valves to step down inlet pressure.

Noise control is not confined to sources which affect the conditioned space. Outside components such as cooling towers and evaporative condensers can also create noises which bother neighbors. This is true not only for residential installations but also for commercial jobs. For example, a dealer who installs a cooling tower on the roof of a restaurant beneath the bedroom windows of a hotel or apartment building is borrowing trouble. Such problems can be solved by the proper use of acoustical panels installed around the equipment. Even outdoor louvered openings which admit fresh air to indoor equipment can be treated in a way that will effectively reduce noise that would otherwise pass through to adjacent properties.

### What Is 'Air Conditioning'?

**True air conditioning provides comfort in all seasons of the year, according to the American Society of Heating and Air-Conditioning Engineers. The ASHAE defines air conditioning as follows:**

**"Air conditioning is the process of treating air so as to control simultaneously its temperature, humidity, cleanliness and distribution to meet the requirements of the conditioned space."**

By selling home builders on the idea of setting up all heating installations for the eventual addition of cooling, this dealer has found a sure way to . .

## Boost Future Cooling Sales



**DEALER TELLS** home builder how he can use the add-on cooling feature as a selling point with prospective home buyers. Fred Mons (left), president of Wagner Sheet Metal, explains the many selling features of summer air conditioning. He points out that before too many years, homes will have to have year 'round air conditioning or suffer a loss in resale value



**SETTING UP** a heating system for the eventual addition of cooling adds little to the cost, Mr. Mons tells the builder. He shows him how cooling coil may be inserted at a later date. If home buyer desires cooling immediately, he points out, the builder will be prepared to offer it. Mr. Mons feels most home owners will add it within five years



SUMMER AIR CONDITIONING sales for the next five years can be set up today if all heating installations are made with the provision for add-on cooling. This is the practice recommended by Fred Mons, president, Wagner Sheet Metal Co., in Glen Ellyn, Ill.

A big percentage of this firm's business is in the new house field. Mr. Mons has found that in the present Chicago area new house market, builders are reluctant to install summer air conditioning before a house is sold. However, they can be convinced of the value of provid-





**ATTRACTIVE BUILDING** on a busy highway helps keep company name in the public eye. Window displays can be seen from highway

ing for add-on cooling. It gives them an air conditioning sales feature, and if a buyer should desire cooling immediately he can easily be accommodated. Mr. Mons has found that about five percent of the home buyers add cooling when they first move in.

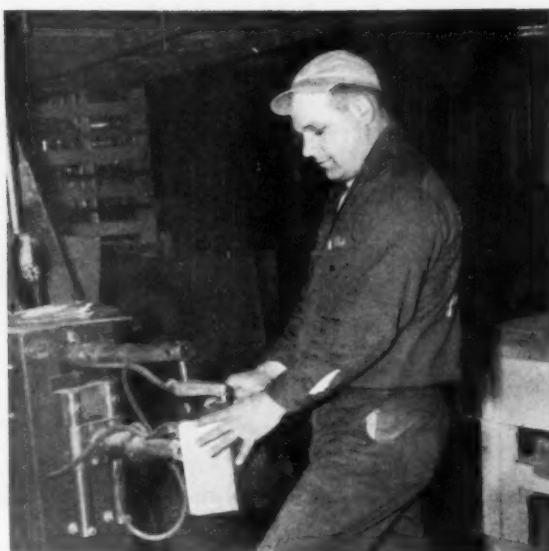
Mr. Mons feels that the market for add-on cooling in these homes will reach its peak within five years. By that time the home owners will have paid off most of the initial expense of their new homes and will be in a position to consider an investment in cooling.

### Keep Contact with Customers

Of course, Wagner Sheet Metal does not intend to let such potential sales lie dormant for that long a period. Many home owners will be ready to consider cooling in one or two years. The firm plans to keep in continual touch with these previous customers in order to be on the spot at the right time.

One way to keep in touch is through service. By providing prompt and courteous service customers are kept satisfied. Because of this, they will naturally think of Wagner Sheet Metal first when they do consider adding cooling equipment. While on a service call the serviceman has an excellent opportunity to remind the homeowner or his wife that cooling can easily be added and suggest that a salesman be sent out to give an estimate. Payment for all of the company's service calls is collected by the serviceman upon completion of the work.

Beyond the company's actual efforts to keep the homeowner reminded of cooling, there is the important fact that the unit itself is a silent salesman. If the add-on cooling feature is emphasized enough at the time of the installation, almost every time the customer looks at his furnace or hears air conditioning mentioned he will be reminded of the fact. Because cooling can be so easily added, it is quite probable that on some hot summer day the idea will prove to be irresistible. With a great number of heating systems set up for add-on cooling the com-



**SPOT WELDER** is used to speed fabrication in Wagner Sheet Metal's shop. Good equipment cuts costs by improving efficiency

pany will be in an enviable position as the summer air conditioning market builds up to its full potential.

### In Business 35 Years

Wagner Sheet Metal has been established in Glen Ellyn for more than 35 years. Eight years ago the firm moved to its present location on a heavily traveled highway. The building was recently remodeled to add a showroom and to give the front an attractive appearance. A large electric sign on the building can be seen from a distance.

Mr. Mons says that the company sells a large number of replacement filters to people who stop in while driving by. That is one reason why he strives to make the showroom attractive and keep up the displays. The showroom has floor to ceiling windows on two sides so that the displays can be easily seen by passing motorists. Ample parking space is provided on three sides of the building.

During the seasons of normal activity, Wagner Sheet Metal employs about 23 men. This number is increased to between 30 and 35 during the peak installation period. The company uses eleven trucks and two cars.

A regular schedule of weekly newspaper ads is maintained in a local paper. A late winter campaign features furnace replacement, since at that time people with inadequate systems are most replacement conscious. Cooling and service are featured in the ads at various times of the year.

Wagner Sheet Metal has done commercial work including stores and a warehouse. This type of business has been growing even though the firm has done nothing in particular to encourage it. Mr. Mons, however, feels that in the future commercial installations will become an important part of his business.

# Mobile Lab Investigates Effect of Auxiliary



## THIS IS THE SECOND

. . . IN A SERIES of reports on tests by the NWAHACA Mobile Laboratory which seek to expose and solve some of the problems cooling dealers will encounter in installing summer air conditioning systems in structurally complex multi-level homes

COOLING OF SPLIT-LEVEL houses offers numerous opportunities for the system designer to overlook pertinent requirements in order to overcome what appear to be natural tendencies of heating and cooling systems to conflict as far as providing comfort conditions on an equal basis the year around. Field investigations by the National Warm Air Heating and Air Conditioning Association's Mobile Laboratory show that areas in split-level houses that are easy to heat are difficult to cool and vice versa.

### Problems Assigned to Two Factors

The air distribution problems uncovered during the 1955 cooling season by the National Warm Air Heating And Air Conditioning Association's Field Investigation Committee are probably due to two factors. These are:

1) The cool air leaving the evaporator coil is carried through ducts located in spaces which are at higher temperatures than is the air within the ducts. Some of these ducts are in occupied areas and any loss of cooling capacity reflected by the temperature gain of the air passing through these ducts does represent useful cooling. Other sections of the duct system are in areas that are not occupied, such as the basement and between the wall studs, and the amount of useful cooling from these ducts is questionable. All these ducts are uninsulated in favor of heating performance.

Heat gain to the ducts results in a temperature increase of the circulating air within the ducts and consequently the air leaves the supply air registers in the upper level rooms at a higher temperature than it does in those rooms closer to the cooling unit. Such a temperature gain will be reflected in a larger air flow rate requirement than would be the case if no heat gain occurred. When it is realized that the normal temperature differential of the air across the cooling coil in these jobs was only about 12 to 18 deg, even a small temperature gain of

3 deg can account for a reduction in cooling ability of about 20 to 25 percent.

2) Cool air introduced into a room should be thoroughly mixed with the warmer room air to produce the desired indoor temperatures. If the mixing is not complete, the cool air stratifies and settles near the floor. Then in the normal course of events, since there is no dam to restrain the free movement of air, the cool air tends to settle to lower elevations by sliding down stairs and drifting through openings between the levels of the house. This in turn will bring warmer air from the rooms on the lower levels to those on the upper elevations.

One obvious answer is to insulate the ducts in the lower level, basement and crawl spaces. While this appears to be a solution during the cooling cycle, it would possibly be a disadvantage during the heating cycle.

### Test House Is Tri-Level

The split-level house described this month is a frame building 43 X 42 ft with three occupancy levels and a basement. The levels are:

Basement level: utilities space (not air conditioned)	
Lower level: recreation room, half bath, and garage	332 sq ft
Middle level: living room, dining room, and kitchen	760 sq ft
Upper level: three bedrooms, two baths, and hallway balcony	724 sq ft
Total occupied and conditioned area	1816 sq ft

The basement is a few feet below the recreation room and about half its floor to ceiling height is below the grade level. The garage and recreation room are both on the lower level and both are at approximately grade level. The smaller bedrooms are directly over the recreation room. The master bedroom is over the unheated garage. The middle level is over the basement area.

# Blower on Split-Level Cooling Performance

... in a typical tri-level house with year 'round air conditioning. The technicians sought to discover whether a blower installed in the attic return duct was accomplishing its purposes of 1) increasing the amount of return air from upper level rooms, and 2) overcoming resistance in the return duct system.

This multi-level house is equipped with a year 'round air conditioning system with the heating-cooling unit installed in the basement. The cooling equipment is in a separate casing adjacent to the forced warm air furnace and is a completely self-contained unit consisting of compressor, evaporator coil and water cooled condenser. Both summer and winter air conditioning units have their own separate blowers. A rather complex duct arrangement connects each unit to the supply and return air trunk lines, forming a parallel circuit. Supply air is delivered to the rooms through low side wall perimeter diffusers generally placed beneath a window. Return air intakes are at high side wall locations. A supplementary blower in the return air side is located in the attic.

The house is located on the eastern seaboard, where the cooling design temperature is 95 F dry bulb and 72 F wet bulb outdoor air and 80 F dry bulb indoors. The daily range of temperatures is considered low. The outdoor design temperature for heating is zero F.

## Construction Features Typical

Walls of the home are of standard frame construction. The exterior is covered with cedar shakes, except for an area on the front which is faced with brick veneer. Interior wall surfaces are dry wall with 2 in. mineral wool batt insulation between studs. The upper and middle level ceilings are insulated with a 2 in. mineral wool blanket.

The roof is surfaced with asphalt shingles. One part is a hip roof; the other portion forms a gable at one end. A small triangular louver is located in one portion of the hip roof facing the southwest. A small 16 in., 1/6 hp attic fan with self-closing louvers is located on the gable end, near the chimney and facing northwest. Half of the attic floor is covered with 5/8 in. plywood.

A few large trees on the southeast side of the house shade the southeast wall to some extent.

The garage and recreation room floors are poured concrete. The garage ceiling is insulated by thick mineral wool batts supported by sheet rock. The master bedroom is located directly over the unheated garage.

## Framing Complicates Cooling Job

All windows are wood, double-hung and equipped with self-storing storm windows and screens. Eleven of the 30 window openings have storm windows that do not fit tightly. Each window has about 1/4 in. opening across the full crackage length. Outside doors are loose fitting and are not equipped with storm doors.

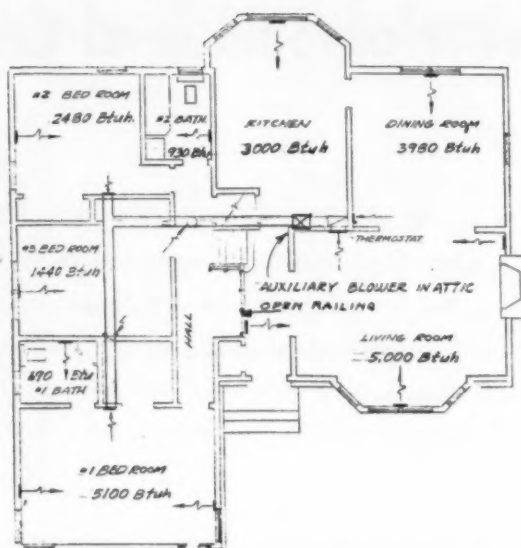
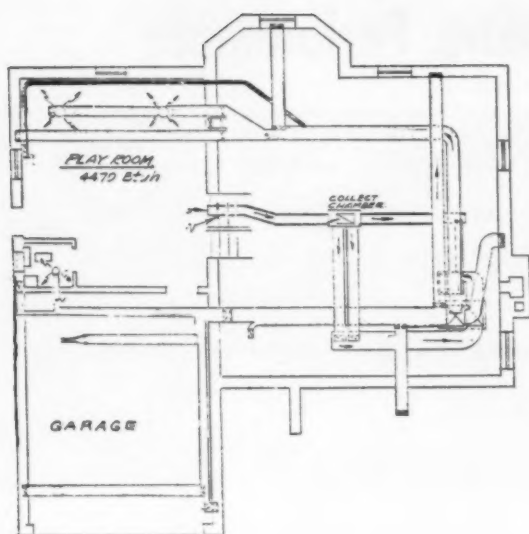
Typical of the construction of many split-level houses, the framing of this house is such that it is almost impossible to run a concealed trunk duct from one end of the house to the other. This makes it extremely difficult to install a duct system with a minimum number of turns and restrictions unless the ducts are installed within the rooms and furred in.

The lawn is sloped away from the house. The roof drains feed into storm sewers.

This house was completed in 1954 at a cost of \$23,000, which included the land and the garage.

The forced warm air lowboy furnace is completely separated from the cooling equipment. The oil-fired unit has a bonnet rating of 136,000 Btuh. The blower, used only for the heating cycle, has a 22 in. wheel driven by a 1/2 hp motor. This relatively large blower was specified to overcome the high static pressure in the return air side of the duct system.

The cooling equipment is mounted in a separate cabinet adjacent to the furnace casing. The two are interconnected to the same duct system through a rather complex arrangement of ducts. Manually operated dampers in the connecting ducts divert the circulating air through either the furnace or the cooling coil. A separate blower



TYPICAL ARRANGEMENT of tri-level house locates bedrooms (upper level) at farthest points from cooling units. Cooling system performance is further hampered by complex structural problems inherent in multi-level dwellings.

with a 16 in. wheel driven by a 1/3 hp motor is incorporated in the cooling unit assembly for air circulation during the cooling season.

The compressor, driven by a 3 hp motor, is rated at 3 tons of refrigeration. The cooling coil consists of vertical coils, four rows deep, with a face area of  $14\frac{1}{2} \times 25$  in. The water cooled condenser receives its water supply from a private well. Slide dampers in the interconnecting duct arrangement and the necessary electrical switches are provided for changeover from heating to cooling. The blower operates on the same cycle as the compressor.

### Condenser Water Used for Sprinkling

The pump for the driven well is powered by a 1 hp motor and discharges into a storage tank through a 2 in. discharge line. The storage tank pressure is maintained between 30 and 50 psi by a pressure control operating the pump. The connection between the tank and the condenser is 1 in. pipe. The water is wasted to the sewer or is used to sprinkle the lawn. In fact, one of the major purposes of the well, prior to the installation of the cooling equipment, was to supply water for sprinkling.

The cooling equipment has the customary motor starting and overload protection devices. The blower is connected to cycle at the same time as the compressor. Cooling control is provided by a separate two-position thermostat in the living room which is set at approximately 70 F. The compressor is equipped with a pressure control set for:

Low pressure cut-in .....	30 psi
Low pressure cut-out .....	15 psi
High pressure cut-out .....	250 psi

The furnace, a completely separate unit with respect to operation, has the customary heating controls.

The duct system, due to structural framing of the house, is complex, particularly on the return air side. The portion of the duct system which passes through the garage is insulated with 1 in. glass fiber.

All the registers in the middle and upper levels are low side wall perimeter diffusers usually placed under windows. Those on the lower level in the recreation room and lavatory are ceiling diffusers except for one base-board diffuser along the west wall.

All return air intakes on the upper and middle levels are high side wall registers except one in the ceiling of the upper level hallway balcony. Two return air intakes are provided in the recreation room on the lower level; these are in two successive risers in the stairway leading to the middle level.

### Booster Blower Used in Attic Return Duct

An auxiliary blower is installed in an  $8 \times 10$  in. return air duct in the attic. The purpose of this blower is to increase the amount of return air from the upper level rooms and to overcome, in part, the high resistance of the return air duct system. This blower discharges into a  $6 \times 10$  in. vertical duct that terminates in a  $28 \times 17 \times 8$  in. collecting chamber in the basement. The auxiliary blower and its duct system collect return air from intakes located in three bedrooms and an upper level hall intake.

The duct designer intended the auxiliary blower to increase the return air flow from the upper level but depended upon the system's main blower to handle the air



**TABLE 1—WHEN AUXILIARY blower in return air duct is not operating, room air temperatures vary up to 5.5 F and differentials between levels are as high as 3.3 deg when outdoor temperature is 82 F**

	Lower Level	Middle Level		Upper Level		
	Play Room	Din. Room	Liv. Room	Mstr Bdrm	West Bdrm	NW Bdrm
3 in. below ceiling	75.4	77.8	78.5	81.0	80.5	80.9
60 in. level	74.3	75.3	75.2	78.4	79.0	78.8
30 in. level	73.7	74.5	74.4	75.8	76.6	76.6
3 in. above the floor	73.3	73.3	73.6	75.3	75.4	75.1
Differentials between levels						
Ceiling-floor	2.1	4.5	4.9	5.7	5.1	5.8
60 in. level-floor	1.0	2.0	1.6	3.1	3.6	3.7
Air Supply — cfm	293	106	307	307	104	167

**TABLE 2—MORE UNIFORM room air temperatures and smaller temperature differentials are noted at higher (84 F) outdoor temperature when auxiliary blower is operating, although blower may not be entirely responsible**

	Lower Level	Middle Level		Upper Level		
	Play Room	Din. Room	Liv. Room	Mstr Bdrm	West Bdrm	NW Bdrm
3 in. below ceiling	79.9	82.9	82.7	83.2	83.2	84.0
60 in. level	78.6	80.1	80.2	81.3	81.8	82.2
30 in. level	77.7	79.3	79.4	79.3	80.2	80.9
3 in. above the floor	77.0	78.3	79.0	79.1	78.7	80.0
Differentials between levels						
Ceiling-floor	2.9	4.6	3.7	4.1	4.5	4.0
60 in. level-floor	1.6	1.8	1.2	2.2	3.1	2.2
Air supply (cfm)	288	71	251	298	110	118

from the remaining return openings. However, in his attempt to avoid installing an individual return duct system from the living room he connected the high side wall return intake in the living room to the discharge side of the auxiliary blower duct system. He evidently believed the main blower would have sufficient capacity to maintain a negative pressure at this point. Any interference with the capacity of the main blower might well upset the performance of the living room return intake because any positive pressure built up by the auxiliary blower would be likely to cause return air to be discharged through the other return intakes.

In an effort to reduce the attic air temperature a 16 in. propeller fan with a 1/6 hp motor has been installed in the attic. The fan discharges to the outdoors through a set of self-closing louvers.

### Total Heat Gain Is 27,090 Btuh

Heat gain calculations were made by the methods prescribed in NWAHACA Manual 11. The total calculated heat gain is 27,090 Btuh or approximately 2.25 tons. The heat gains as distributed on each of the three levels are as follows:

Lower level ... 4470 Btuh... 16.5 percent of total  
 Middle level .. 11,980 Btuh... 44.2 percent of total  
 Upper level .. 10,640 Btuh... 39.3 percent of total  
 Total ..... 27,090 Btuh

(Based on the above data, the total heat gain of 27,090 Btuh for the total floor area of 1816 sq ft amounts to 808 sq ft per ton of calculated heat gain.)

Heat losses are based on an outdoor temperature of zero F and an indoor-outdoor temperature difference of 70 deg. The calculated heat loss for the middle and upper levels is 65,861 Btuh, and for the lower level is 13,144 Btuh; a total of 79,005 Btuh for the entire structure. This is a ratio of heat loss to heat gain of 2.9.

On the datum day, August 11, 1955, the maximum temperature was 83 F. The sky was cloudy and the air was extremely humid. Hurricane warnings were actually issued that day. Maximum temperature recorded during the test period was 86 F. The minimum temperature of

75 F occurred on two days. No adjustments were made by the mobile laboratory technician on the system before or during the survey.

Note that some of the tabulated data in this report has been arranged to show the effect of the operation of the booster blower inserted in the return air duct in the attic. Readings were taken with both the system's main blower and the auxiliary blower operating, and again with only the main blower operating.

### Differential Greater in Upper Level

Regardless of whether the auxiliary blower in the attic was operating, the room temperature differentials showed wider values for upper level rooms. The room air temperatures increased at each higher level of the house. The coolest space was the recreation room on the lower level.

The room thermostat setting was 70 F while the actual temperatures measured at the 60 in. level were about 76.8 F and 80.7 F for the two tests. The condensing unit operated continuously during these test periods. It appears doubtful that the cooling unit would have sufficient capacity to cool the house on a design temperature day.

The effect created by the auxiliary blower, so far as room air temperatures are concerned, was not marked. Although it is true that the temperatures in Table 2 show a greater uniformity of room air temperatures and somewhat smaller temperature differentials than those given in Table 1, it is not yet possible to tell whether this improvement was related to the use of the auxiliary blower.

As might be expected, the use of the auxiliary blower in the return air duct located in the attic had little effect on the air delivery rates from the supply air registers. The two values of 1481 and 1414 cfm, calculated from velocity readings, show practically no effect from auxiliary blower operation. A value of the average of these two, or 1450 cfm, is considered as representing the probable air flow rate through the system. This corresponds to 483 cfm per ton of rated refrigeration capacity. A comparison of the total air flow rates shown in Tables 1 and 2 indicates that the total rate was not materially affected by operation of the auxiliary blower.

## BACKGROUND OF THESE REPORTS

A SERIES OF FIVE articles on heating split level houses was published in the June through October, 1956 issues of American Artisan. The articles were summarized from data obtained by the National Warm Air Heating and Air Conditioning Association's Mobile Laboratory and evaluated by members of the association's field committee. This new series of four articles on cooling split-level homes presents information from the same sources.

The results of the heating investigations indicate that the lowest level of the house is the hardest to heat and is thus the coolest part of the building during the heating season. On the other hand, the upper level is the easiest to provide with winter comfort. An analysis of the data secured by the Mobile Laboratory during the summer of 1955 shows that the most difficult level to heat is the easier to condition during the summer and that the easiest area to pro-

vide with winter comfort is the most difficult to condition in summer.

The problems uncovered by the Field Investigation Committee are by no means unsolvable, and would, in several cases, never have existed had the designers of the systems used the information available in the association's manuals. It should be obvious that care must be taken in the design and installation of year 'round air conditioning systems in split-level houses.

The calculated cfm is materially less than the 1450 cfm measured at the supply air registers. In view of the fact that leaky joints in the return air duct system interfered with accurate measurement of the air volume handled, greater reliance is placed on the 1450 cfm value of the supply side than on the cfm value of the return side.

The winter air flow rate through the heating unit with its own blower (determined from a previous heating survey) is 659 cfm. Thus, the cooling air flow rate is approximately 2.2 times that required for heating in this case.

Register air temperatures average 71.8 F. This temperature is probably too high for effective cooling performance.

For comparison purposes, the following tabulation shows the percentage of air supplied to and returned from each of the three levels and the percentages of heat gain for each level:

	Percent total heat gain	Percent total supply air	Percent total return air
Auxiliary blower not operating			
Lower level .....	16.5	20	5
Middle level .....	44.2	41	79
Upper level .....	39.3	39	16
Auxiliary blower operating			
Lower level .....	16.5	20	5
Middle level .....	44.2	43	32
Upper level .....	39.3	37	63

The operation of the auxiliary blower in the attic did not appreciably change the total cfm flowing through the system but did make a material difference in the percentage of air moved in the various levels. For example, when the auxiliary blower was not operating, only 16 percent of the return air was from the upper level and 79 percent came from the middle level. When the auxiliary blower was operating, 63 percent of the total return air came from the upper level and only 32 percent was from the middle level.

This supports the belief that the operation of the auxiliary blower would cause the bedroom and other upper level intakes to be more effective. On the other hand, if the blower were adequate enough it could actually cause air to be delivered into the rooms from the

lower return air intakes. The bottleneck in the return air system was still in the basement duct system and the auxiliary blower as it was placed in the duct system did not accomplish the full purpose for which it had been installed.

A traverse of room air velocities near the stairway from the upper to the middle level, and around the iron railing separating the upper level hallway balcony from the middle level, showed no evidence of excessive air motion. There was little if any air movement over the edge of the balcony down to the middle level. No air velocities in excess of 45 fpm were noticed.

### Occupants Have Complaints

The house was occupied by a middle aged couple and one person under the age of 20. All were reported in good health. The owner said he worked in a very warm environment and felt the need of relaxing comfort when he returned home in the evening. The family reports:

- 1) The bedrooms are uncomfortably warm.
- 2) The air in the house smells stale after several days of continued operation.
- 3) Since they are not entirely satisfied with the operation of the system, they feel the return on the investment is not satisfactory.
- 4) They think the operating costs are excessive.
- 5) They think the unit is not large enough.

The thermostat is usually set at 70 F but is changed from time to time by one of the occupants, particularly in the evening when light load periods help the equipment cool the house to the selected temperature. The system is allowed to operate under the command of the thermostat all day and night but the bedroom windows are partially opened at night for fresh air to relieve the stale odor.

Further reports on the investigations of cooling problems in multi-level homes by the NWAHACA mobile laboratory and field committee will be presented in subsequent issues of American Artisan.

*... looks back on*

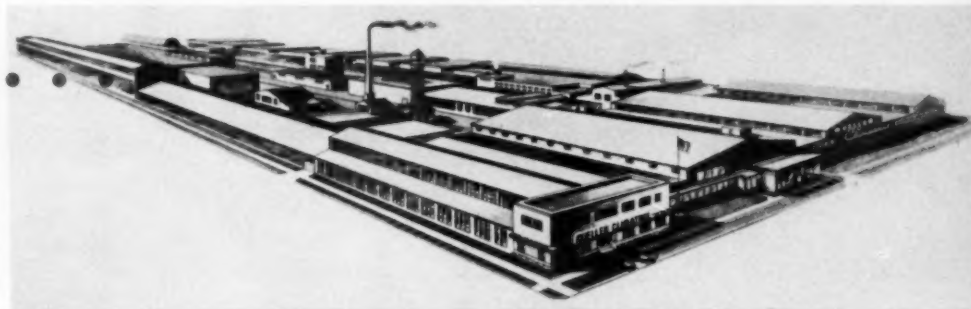
# 100 Years of Progress

from humble  
beginning . . .



**Mueller Climatrol**  
grew . . .

. . . from the first pipeless furnace  
to the automatically controlled comfort systems of today



. . . to a 15 acre plant

ANY REVIEW of the history of warm air heating since its beginning discloses a story of remarkable progress. Although the exact date is not recorded, we know the first pipeless furnace was developed about 100 years ago, when the Benjamin Franklin stove was moved to the basement and encased in brick walls. The second step was discarding the bricks in favor of galvanized iron casings. About this time L. J. Mueller, Sr., developed a cast iron coal-fired unit which contained a self-cleaning feature. He started production of this furnace in his small combination hardware store and sheet metal shop. In 1890, he turned the active management of the business over to his son, L. J. Mueller, Jr. H. P. Mueller, Sr., now heads the company, and the fourth generation is represented by H. P. Mueller, Jr., vice president in charge of sales. Frank J. Nunlist, Jr., is executive vice president.

## **Firm's Growth Reflects Industry Progress**

From the humble beginning in 1857, the company has grown to a 15 acre plant with hundreds of employees who today turn out 218 models of heating and cooling equipment. The progress of this company during the past 100 years reflects the progress of the heating-cooling industry in general. The advances made by the industry have been based on the desire to create something better.

Marketing procedures during the past 100 years have changed considerably. At the beginning the prospect came to call on the shop owner to talk about a custom made furnace for his home. Today the aggressive dealer seeks out his prospects, but still sells a custom made job.

No industry can long survive if the public does not have confidence in its products and services. The dealer is the key man in the success of any industry. His engineering ability, manual skills, management aptitude and integrity must be maintained.

## **Industry Must Be Merchandised**

The equipment offered today provides comfort and health. Prospects must be told about the many advances the industry has made. This is where merchandising has helped the industry to grow. Product styling, appreciation of the direct benefits to health and modern living all are sales tools the dealer can use to assure a continued growth of his business and his industry.

A 100th anniversary is an excellent occasion to celebrate the founding of a company and the progress of an industry. Mueller Climatrol is celebrating its 100th anniversary by holding a two day open house for employees, customers, the press and other friends. On May 16, a commemorative dinner will mark the date selected for celebration of the important milestone.

# **Terne Roofing Job Puts *Ramblin'* Wrecks Underground**



ALEXANDER MEMORIAL ARENA DOME roof is covered with 725 squares of terne metal

**. . . in new Georgia Tech arena with  
below-grade seating area covered by 270 ft diameter roof  
employing standing and batten seam construction**

ARCHITECTS DESIGNING the Alexander Memorial Arena building at the Georgia Institute of Technology found they could save considerably on installation costs by utilizing a ravine that runs across one corner of the campus and placing the entire seating area below the surrounding ground level. This arrangement would leave only the roof actually projecting above the ground. To produce a roof that would both harmonize with the surrounding campus and have a long, service-free life, the architects called in J. D. Knox, vice president, R. F. Knox Co., Inc., one of Atlanta's largest sheet metal contractors, as a consultant. Mr. Knox outlined installation procedures for

an inverted saucer-like roof made of 40 lb terne roofing sheets.

## **Consultant Wins Bid**

When the specifications were finally let for bidding, Mr. Knox's familiarity with the requirements enabled him to estimate the job to meet all the architect's specifications, and in the manner desired. He was awarded the contract from among five other bidders.

Other specifications for the 7000 seat arena called for 14 gas-fired 1,000,000 Btuh unit heaters spread at equal distances around the circular building. The unit heaters are vented through the roof with 18 ga stainless

steel vents. These vents were included in the sheet metal specifications, as was the flashing where they would penetrate the roof.

## **Cupola Houses Fan**

The roof is 270 ft in diameter. Its peak is 75 ft above the arena floor. There are 725 squares in the arched roof. At the peak a 40 ft cupola houses four propeller fans, loud speakers and lighting apparatus for the game area. This space is protected by a 3 ft overhang. The upright sides of the cupola were fabricated from 16 ga galvanized steel. The sides are primarily of louver design, backed up by 1/2 in. mesh wire.



The top of the cupola is crowned with a plastic dome that admits daylight. The dome is fastened to the cupola by  $\frac{1}{4}$  in. cadmium plated bolts spaced at 12 in. intervals. The roof joint is sealed with a neoprene washer.

Where the cupola joins the main roof, the columns are flashed with 40 lb tin. One in. clearance around the column allows for expansion and contraction. This space is filled with mastic caulking compound.

### Roof Well Insulated

The roof was laid over a precast 3 in. insulation. Over the roof insulation is a layer of 40 lb resin-sized paper, then the 40 lb terne roofing material which is painted on one side. (The painted side is against the resin-sized paper.) Both standing seams and batten seams were used to join the strips of terne roofing. The roof was finished off with one prime coat and a finish coat of cement base paint.

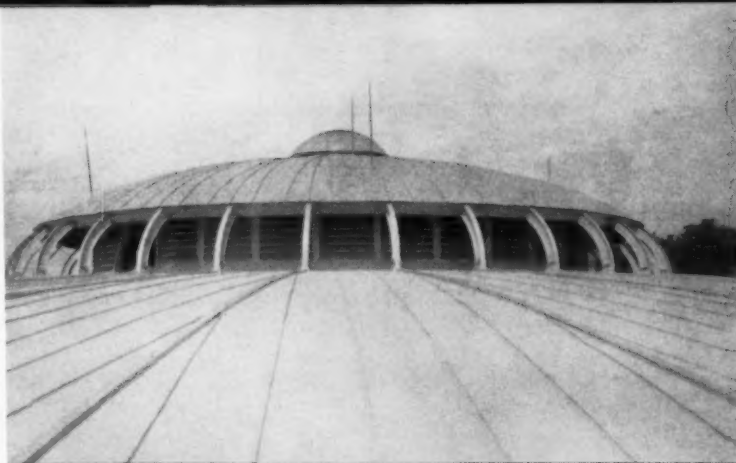
Installation of the roof was according to these specifications: "All soldered joints to be made with 50-50 solder using resin as the flux; all excess flux to be removed from joints before they are painted."

### Two Types of Seams Employed

The roof exceeds the minimum pitch of  $2\frac{1}{2}$  in. per ft in all cases, except that section under the cupola overhang; therefore, both standing and batten seams were used. Cleats were set 8 in. apart to hold the sheets in place. Two cadmium plated  $1\frac{1}{2}$  in. sheet metal screws were used to anchor the cleats to the 2 in. precast insulation. The edges of the standing seam were turned up 1 in. This required that one sheet be turned up  $1\frac{1}{2}$  in. and the second, forming the joint, turned up  $1\frac{1}{4}$  in. before being joined in the final lap.

### Cross Seams Staggered

All cross seams were staggered to add strength to the roof. Cross seams were single locked and soldered. The lock is in the same direction as the flow of the roof.



CUPOLA PROVIDES location for ventilating fans, public address system and spotlights for arena



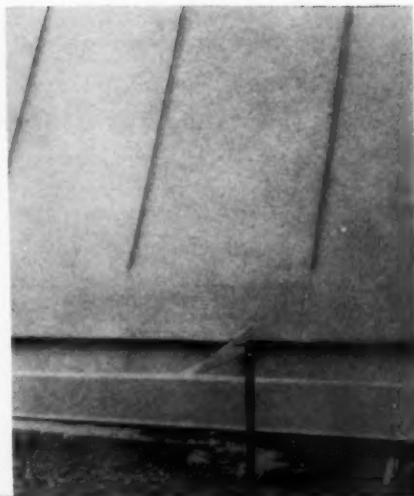
JOINT BETWEEN standing seam section and flat locked seam section is inspected by sheet metal contractor J. D. Knox



JOINTS BETWEEN standing seams and batten seams were made on a tapered angle to proportion the volume of drainage



**STAINLESS STEEL HORIZONTAL VENTS** are used as chimneys for 14 unit heaters spaced around the perimeter of the roof. Tapered face provides overhang for protection against rain



**FLASHING OF the gutter support** required a soldered hood over the angle iron bracket

Batten seams were installed every three strips at the peak of the roof; this spacing widens to 16 strips at the bottom edge. The sheets were mitered into the battens. Battens are 3 in. wide, 1 in. high. The strips were turned up  $\frac{1}{4}$  in. above the batten edge, bent at a 90 deg angle and attached to the batten with cleats staggered on 8 in. centers. The batten cover was next installed over the cleated strip edges, then hammered into place.

#### Flat Lock Seams Used

In the flat portion of roof, under the cupola overhang where the pitch is below  $2\frac{1}{2}$  in., flat lock seams are employed. Cleats  $1\frac{1}{2}$  in. wide were hooked over a  $\frac{1}{2}$  in. edge and fastened to the insulation. Seams were hammered down with a wooden mallet and soldered.

The end of the standing seam was joined to the flat section of the roof by turning the seam on its side, flattening it to the roof and placing it under the flat locked sections. The two sheets were soldered to form a flat seam.

At the lower end of the roof, the standing seam was terminated 8 in. above the gutter. The sheet was formed into a soldered flat locked

seam from the end of the standing seam to the gutter where it was bent under the roof edge.

Gutters are 10 in. wide, supported by angle iron braces. Where these braces are fastened to the roof edge, they are flashed with a small hood soldered to the roof. The gutters are recessed 2 in. under the roof edge to provide drip edges well over the side of the gutter.

#### Metal Boxes Allow Expansion

Where the curved I beams form the cupola, they protrude through the metal roof. Because there would be considerable expansion and contraction at this point, a 2 in. metal box was formed around the I beam.

This box was filled with a mastic caulking compound and soft soldered to the terne roof. The clearance for this box is 1 in. from the beam.

The 14 points where the unit heater stainless steel vents protrude were flashed with terne roofing sheet. These vents were designed to provide rain protection by slanting the face of the vent so the top forms a natural overhang. The openings in the vents were screened to prevent birds from building nests in them when the heaters were not in use.

The result is a tribute to the resourcefulness of the sheet metal contractor — an impressive architectural accomplishment which is modern in design, structurally sound and economically produced.

### In Next Month's Artisan you'll find . . .

- How to install an outside air intake
- Fabricating techniques using galvanized steel coils
- How "Under \$5000 Club" stimulates dealer's salesmen
- More suggestions for cooling split-level homes

# New College Short Courses

## Take Problems in Stride

**Benefiting by previous experience in conducting college short courses, NWAHACA and university representatives get classes off to a flying start without delays or confusion often typical to new ventures**

THE AXIOM that time passes quickly when one is busy becomes an understatement when the time is limited and the business is as complex as designing a heating and cooling system.

These are the conditions which prevail at each of the four day college short courses in heating and cooling sponsored by the National Warm Air Heating and Air Conditioning Association in cooperation with various colleges and universities throughout the country. The whole process is further complicated by the fact that the courses are attended by dealers, mechanics, salesmen, apprentices, office workers and others from all phases of the industry, representing many levels of experience and background.

These factors add up to a tremendous undertaking even under ideal circumstances. When the course is being presented at a school for the first time, an observer might expect to encounter a few stumbling blocks and be prepared to experience some wasted time and unforeseen problems.

This was not the case at Omaha university April 8-11, when more than 50 western industry members attended that school's first heating-cooling short course. Previous experience in conducting similar courses at other colleges has enabled Guy A. Voorhees, Dean Lorin Miller and their associates, who formulate and present the short courses, to trim the subject matter and the presentation down to exclude superfluous information, yet satisfy everyone.

Officials of Omaha university, which has recently opened a new adult education conference center, and the engineering department faculty were wholehearted in their cooperation, assisting in the presentations, arranging for facilities and administering to the needs of the group.

Three courses are offered at each school, with little variation. New industry members or established dealers who have been mainly concerned with selling or management may elect to take the first problem which involves figuring heat losses and gains in a small, single story residence. Others, who are mainly interested in cooling or who have recently become exposed to the air distribution problems in split-level houses, will take the second course, which is mainly concerned with cooling this type of residence. Those who are interested in the latest trends or are entering the commercial air conditioning field will attack the third problem—cooling a small commercial building.

The actual problem work, assigned and led by qualified instructors from the field and conducted according to the NWAHACA manuals, is supplemented by lecture and demonstration sessions each morning and afternoon, attended by all three groups and devoted to topics of general interest.

Students quickly become aware that more information is presented during the four day sessions than can be absorbed on the spot, and that the true value of the course is realized when the basic practices learned in the classroom are applied in the field.



**PROBLEM WORK**, simulating actual jobs, gives students a chance to apply the information learned from . . .



**DEMONSTRATIONS** and lectures by specialists from the field. Accumulation and application of information is culminated by . . .



**PRESENTATION** of certificates as reminders of importance of using latest methods and following recommended procedures

## *It's a winner!*

This dealer has a customer winning sales promotion program, but finds it must be continually adapted to changing conditions. Here is his program and his plans for . . .

## Where to Go From Here



**LITTLE GIRL** chosen from audience helps Adam Pataky give away conversion burner at Columbus home show

YOU CAN'T stand still on sales promotion. No matter how fine a program you have you've got to keep changing its emphasis, shifting techniques to keep up with the demands of the moment. Adam J. Pataky, Lusch and Schill Furnace Co., Columbus, O., has an exceptional promotion program. But today he is faced with the question of where to go from here.

Lusch and Schill's promotion efforts have utilized newspaper ads, direct mail, home shows, telephone directory ads, give-aways — in fact, almost all of the generally accepted promotion techniques. But with competition getting tougher and pressure growing to cut costs, Mr. Pataky has had to reconsider his program to make certain that it is as effective as it could be and that he is getting the most for his money.

He has come to one general conclusion. Although for the most part his promotion program will remain the same, he intends to cut back in several areas, and divert the money saved into more direct contact and personal solicitation. Today's market, he feels, calls for harder direct dealer selling.

The company's business is 95 percent in the replacement market. It handles only a small amount of commercial work. Mr. Pataky refuses to sell price. He says, "If I've got to be the low bidder, I'd rather do without."

He backs up quality work with good service. The servicemen are sales minded and suggest new parts and equipment when they are obviously needed.

By sticking to its policy of quality rather than price, Lusch and Schill has established a good reputation and a long list of satisfied customers. As a result, a large portion of its business comes through customer recommendations and through repeat sales.

### **Makes Seven Mailings Per Year**

Direct mail is an important part of the company's promotion program. Mailings are scheduled to hit one area of the city at a time so that calls can be grouped conveniently. Mr. Pataky makes three mailings each year on heating and three on cooling. In the spring a postcard is mailed to the customer list offering a seven point furnace check up at a special price.

The company maintains a schedule of weekly newspaper ads. The ads run in Wednesday editions during the off season. During the peak seasons the ads are shifted to the Sunday magazine supplement and are increased in size. The larger ads are two columns wide by 10 in.

In addition to its own newspaper ads, the company has participated in an institutional advertising program sponsored by the Heating, Air Conditioning and Sheet Metal Association of Columbus.

Mr. Pataky makes extensive use of matchbook advertising. "I use matchbooks as a kind of business card,"





**CALENDARS** sent to past year's customers are carefully selected since they must compete with many others

he says. "Business cards will be thrown in a drawer or in the wastebasket and forgotten," he points out. "But most people will keep a matchbook and use it."

Mr. Pataky makes it a practice to distribute the matchbooks freely among members of the various clubs to which he belongs. The matchbooks carry his picture and name, since the company name is different than his own. "I've found that many people know you, but don't have the slightest idea what your business is. When they find out, they frequently ask you to service their equipment and the first thing you know you've got another customer," he says.

In telephone directory ads he also uses his picture and name, so that he will be personally identified with the firm.

### Past Customers Cultivated

Because past customers can be such a good source for leads, Mr. Pataky makes it a point to keep his customer garden well cultivated. After each installation is completed, he writes a letter to the customer thanking him for his business. He asks customers to recommend the company to their friends and relatives and offers \$5 for each lead that results in a sale.

In addition, he sends each customer from the previous year an attractive calendar designed for kitchen use. Mr. Pataky takes great care in selecting each year's calendar. "So many calendars are sent out each year," he says, "that you've got to have a good one to get it used."

For a number of years Lusch and Schill has participated in the annual Columbus home show. To stir up interest in the company's displays, Mr. Pataky has given away caps for resealing carbonated beverage bottles. These caps, which are imprinted with the company's name and address, are inexpensive and have proven to be very popular. In addition, he has given away a replacement burner. The winner was selected by choosing the best completion of the statement "I would like a replacement burner because . . ."

The home show, however, is one promotion item that Mr. Pataky is dropping. He feels that its cost has become too great and that the company does not get sufficient value from it.



**IN SELLING** quality, Mr. Pataky stresses assured comfort, points out that heating is a long term investment



**DIRECT MAIL** campaigns are focused on particular areas to make calls more convenient

Mr. Pataky believes that the way to beat price cutting within the industry is to keep your own price up and concentrate on selling quality. "After all," he says, "what are a few dollars additional spread over the life of the equipment. And for those additional dollars the homeowner is getting assured comfort."

To emphasize this point, Mr. Pataky cites examples of replacement jobs he has sold where the equipment being replaced was only three or four years old. Those homeowners had suffered with inadequate equipment and were willing to listen to a quality story.

"The real competition today," he declares, "is the new automobile, the new kitchen or bathroom. You don't compete with a person's desire for a new car by telling him that you'll sell him a new heating system for less money. The only way you can compete is by selling him on the increased comfort and convenience. If you can establish his desire for those things, the question of price will take care of itself."

Mr. Pataky believes in pointing out that a heating system is a long term investment. He points out to his prospects that when you buy a car, if you happen to get one that does not perform properly, you can suffer with it for a while and then trade it in without too great a loss. But if you buy an inadequate heating system, you're stuck with it.

# How to Estimate a Job

Here are some pointers that will help dealers realize the full measure of profit they have a right to expect on each job, as presented by wholesaler Robert A. Friestad to members of the Grand Rapids, Mich. heating association



**THIS SERIES** of articles, under the general heading, " 'TRAINING PROGRAM' ... in Print," is designed to help dealers train their engineering, service, managerial and sales personnel in all phases of their operations. These articles are selected for their informative value and are presented as reference material for developing know-how among employees in situations which are likely to arise. Some of the previous articles in this series have discussed:

- electrical problems
- humidity control
- management techniques
- air distribution
- sales presentations
- school heating
- promotion ideas
- attic fans
- selling builders
- attention to details
- installation procedures
- fume removal

MANY DEALERS USE the quick method of determining the selling price of a warm air heating system. In general such an estimate may follow a pattern similar to this:

- \$30 for each supply opening
- \$37.50 for each return opening
- 40 percent markup for furnace
- \$25 for electric wiring
- \$15 for gas line piping
- \$20 for a humidifier

(Figures vary with locality and dealer's operation.)

Let's assume a job requires ten supply openings, two return openings, a gas-fired furnace and a humidifier. Such a job estimated by the quick method would cost \$720.30 plus tax and permit fees.

## Quick Method Has Weakness

This method has many weak points when compared with an itemized material list and a proved pricing formula. The job described above would sell for \$807.28 if estimated according to the method which utilizes a proved formula. There is a difference of \$86.98 between the quick method price and the cost determined by following a pricing formula which includes the costs of doing business plus a reasonable profit.

A sample estimate of the material required is reproduced in Fig. 1, which shows that costs come to \$403.64. In the pricing schedule outlined in this example, the total costs are multiplied by 2 to obtain the selling price of \$807.28. The multiplier 2 is used because the dealer who uses this formula has found this method of estimating his selling price provides for his costs of doing business under these ratios:

- Overhead ..... 20 percent
- Labor ..... 12 percent
- Selling ..... 8 percent
- Net profit ..... 10 percent
- Material costs .... 50 percent

The multiplier will vary with business location, type of business, size of business, location of city, labor costs and many other related factors. The multiplier must be determined from a thorough study of job costs over a period of several years. It may vary from 1.75 to 2.50 or even more when contributing factors raise the cost of doing business.

## Cost Sheet Checks Estimate

One method of checking estimated costs against actual costs incurred is the cost recapitulation sheet (Fig. 2). Applying the formula percentages listed above to the recapitulation sheet indicates that the selling price should have been \$831.18, which includes \$18.90 sales tax and \$5 installation permit fee in addition to the estimated \$807.28. Overhead percentage costs of 20 percent amount to \$161.46 in this category; a normal labor cost of 12 percent becomes \$96.87; a selling cost percentage of 8 percent comes to \$64.58; and a 10 percent net profit equals \$80.73. Actual costs, recorded in the right hand column, are fairly close to the estimated costs except for labor, which totals \$129.46 — \$32.59 above the estimate. Figured on a percentage basis this category increased to 16 percent. The additional labor costs reduced the actual profit to 6.3 percent, or \$50.59 instead of the \$80.73 anticipated.

A continued trend toward higher labor costs would require a revision

# MATERIAL LIST

Page 1

JOB NAME <u>Wayne A. Hopkins</u>	DATE <u>12/10/56</u>
ADDRESS <u>74 Pleasant Ave.</u>	JOB NO. <u>178</u>
<b>HEATING EQUIPMENT</b>	
Furnace	\$204.50
Gas burner	
Oil burner	
Blower	
Stoker	
A Sub-total	
Cost	\$204.50
<b>COOLING EQUIPMENT</b>	
Conditioner (condensing unit and cooling coil)	
Blower and motor	
Cooling tower	
Water valve	
Damper top	
Filter Rack	
B Sub-total	
Cost	
<b>SPECIAL DUCT AND FITTINGS</b>	
1 Warm air plenum (17 1/2 x 17 1/2)	\$ 5.80
1 Return air plenum (17 1/2 x 15 1/2)	5.46
27 ft Trunk (14 x 8)	20.97
18 ft Trunk (10 x 8)	11.94
2 End cap trunk (14 x 8)	1.06
1 End cap trunk (10 x 8)	1.50
1 Riser collar (14 x 8)	1.92
1 Riser collar (10 x 8)	1.62
C Sub-total	
Cost	\$49.27
<b>WARM AIR DUCT AND FITTINGS</b>	
120 ft Duct (6")	\$27.72
6 ft Duct	
6 ft Boot (2 1/4 x 12 x 6 in.)	8.64
4 ft Boot (2 1/4 x 12 x 6 in.)	5.76
4 Angles (6 in.)	1.68
Angles	
4 Angles (6 in.)	2.08
Elbs	
Elbs	
Elbs	
1 Straight collar (14 x 8)	1.92
<b>WARM AIR DUCT &amp; FITTINGS (cont'd)</b>	
10 Collars (6 in.)	\$12.60
Collars	
Collars	
10 Dampers (6 in.)	1.90
Dampers	
Dampers	
Dampers	
<b>Stack and fittings</b>	
Stack	
Stack	
Stack	
<b>Return air duct, fittings</b>	
R.A. Boot	
R.A. transition	
Duct	
Duct	
Angle	
Angle	
Angle	
Elb	
Elb	
Elb	
Drawband	
<b>Register heads, pens</b>	
1 2 1/4 x 12 - 12 x 6 in.	\$1.11
<b>Smoke pipe and fittings</b>	
2 Smoke pipe (5 in.)	.56
Angles	
2 Elbows (5 in.)	1.12
1 Drawband (5 in.)	.54
1 Taisble (5 in.)	.24
Smoke tee	
Cleanout	
<b>Sheet metal</b>	
16 ft - 36 x 96 - 30 ga	\$ 5.44
<b>D Sub-total</b>	
Cost	\$69.81

Page 2

<b>REGISTERS, GRILLES AND DIFFUSERS</b>	
4 Diffuser (2 ft)	\$10.52
3 Diffuser (4 ft)	10.29
1 Diffuser (10 x 6 in.)	1.50
2 Diffuser (2 1/4 x 12 in.)	3.90
2 Grille (30 x 6 in.)	4.40
E Sub-total	
Cost	\$30.61
<b>ELECTRICAL EQUIPMENT</b>	
Wiring	\$25.00
<b>PLUMBING EQUIPMENT</b>	
Gas pipe	\$15.00
<b>COOLING TUBING AND FITTINGS</b>	
F Sub-total	
Cost	\$40.00
<b>MISCELLANEOUS</b>	
Oil tank	
Tubing (fuel)	
Asbestos paper	
Rolls of tape	
Controls	
1 Humidifier	\$9.95
G Sub-total	
Cost	\$9.95
<b>Sub-total A Cost</b>	
B Cost	\$204.50
C Cost	49.27
D Cost	69.81
E Cost	30.61
F Cost	40.00
G Cost	9.95
<b>TOTAL COST</b>	
	\$408.64

1 SAMPLE ESTIMATE form provides complete breakdown of all material required for typical job

of the multiplier figure. Other costs that vary with outside influences are those items included in the 20 percent overhead figure. A periodic check of these costs should be made and the overhead percentage figure altered to bring the overall costs into their true relationship with the other costs. Table 1 lists costs normally figured into the overhead percentage.

Too often certain expenses are not charged individually on the estimate, because the dealer assumes the overall category of overhead costs includes these abnormal expenses. One example is the cost of delivery and placement of equipment. Table 1

shows a heading for cartage. This item is intended to cover only those costs normally encountered in delivering equipment from the shop to the job site. If additional costs are involved (say an outside contractor is called in to pick up the equipment, deliver it to the job site and set it in place) these costs should be included in the original estimate and added to the forms shown in Figs. 1 and 2.

The long list of items presented in Table 1 points out how quickly overhead costs can reach the recommended percent figure. The list also reminds us that operating costs require constant observation. On occasional jobs a dealer will find that ac-

curate estimates are very difficult to make due to unusual conditions encountered in the installation of the equipment. This is often the case in modernization work. In these cases, the job is usually let on a cost-plus basis. Dealers submitting statements for work performed under this type contract should include the overhead costs as well as those of material and labor before adding the percentage specified for the service rendered.

It takes a lot of hard work to make any business a success — there are no short cuts. The warm air heating and cooling business is a three part structure, consisting of sales, service and supervision. Each part is closely



## 'Training Program' ... in Print

integrated with the other two. Any change taking place in part 1 (sales) is quickly noted from several sources (monthly balance sheet, call reports, inquiries, jobs engineered and others). A change in part 2 (service) is also readily noticeable through time cards, telephone calls, servicemen's activities, parts purchased and others. Least noticeable changes are those in part 3 (supervision). The

dealer must keep this function foremost in his mind to prevent conditions from getting out of hand, because every wasted effort has its effect upon the final profit picture. If a dealer will use all of the business tools he has at his disposal, it will be much easier to overcome undesirable trends.

### Set Up Job Record System

One of these tools is a job envelope in which is kept all the records involved in each job.

Listed on the outside of the envelope is pertinent data: job number, customer's name and address, phone number, completion data and equipment model and type. This form also includes a list of the controls, filters, smoke pipe size and other data that will come in handy on future service calls. This envelope retains all records on each customer in one place for ready reference. It also helps in building mailing and prospect lists.

Every sale should culminate in a signed contract. It simplifies many of the problems which arise when it's time to collect for the equipment and the work. It is a service to the customer because he has a record of what he has purchased, he knows what to expect from the dealer and he realizes he is dealing with a good businessman. Such a contract can be obtained from most manufacturers of furnaces. A good contract form for both heating and cooling equipment is essential. The contract, which also serves as a proposal form, is most effective when made out in triplicate: the original copy for the contract file, a second for the purchaser and the third for the dealer's reference file.

### Find Reliable Accountant

Enlisting the services of a good certified public accountant or reputable accounting firm is another important management step toward an operation which produces a profit on every job. The accounting service should be matched with the size of the business operation. At least one tabulation a month should be scheduled, and a complete report should be prepared at the end of each fiscal year.

The importance of a good credit policy cannot be overemphasized. Every well-operated business has a basic credit policy to protect its investment in time, equipment and reputation. The following figures are based upon a Dun and Bradstreet report on the contracting field for 1955. The same trend was noted for 1956 and there is no evidence that it will change during 1957. General contractors represented 31 percent of the total business failures with a dollar loss of 48 percent of the total. These failures were at least partially responsible for the large number of heating dealers who failed. (This group represents 16 percent of the failures for a dollar volume of 10 percent of the total.) There were 18 other classifications of businesses that failed. These represented 53 percent of the failures for a dollar volume of 42 percent.

These figures suggest that other

**TABLE 1 — FINGERTIP LIST of all costs which are considered as overhead will prevent profit-consuming omissions from estimate**

Advertising	Legal expense
Accounting expense	Light
Automotive expense	License
Amortization-leasehold expense	Office supplies
Bad debts	Office expense
Business promotion	Permits
Commissions (special)	Postage
Cartage (shop to site)	Periodicals
Depreciation	Rent
furniture and fixtures	Repairs and maintenance
machinery and equipment	Refunds
automotive equipment	Store
Donations	Shop supplies
Discounts allowed	Salaries
Dues	Taxes
Entertainment	payroll
Expense (misc.)	use
Freight	gross income
Federal old age benefits	local
Federal excise tax	other
Gas (for hot water)	Travel
Gifts	Telegraph
Heat	Telephone
Insurance	Truck Expense
group life	Uniforms
employee	Water
general interest	Wages



industries did better jobs of checking credit and knowing their costs of doing business.

The total number of failures did not increase greatly in 1955 over 1954; however, the dollar loss increased 45 percent in 1955 over the previous year.

### Evaluate Credit Risks

What can and should be done to help determine to whom credit should be extended? Here are four questions which should be answered to evaluate a prospective general contractor as a credit risk:

1) Does he have a sound background in the type of work he is doing?

2) Is he doing an adequate volume of work to make a profit — under conditions which he completely understands?

3) Is sufficient capital available to finance the work so he can pay on completion or as agreed?

4) Are his jobs being completed on a reasonable cost basis and in line with his original plans?

To complete the credit picture, the dealer would be wise to secure a list of the contractor's current and previous subcontractors and material suppliers, and check to see how he pays them.

### Learn To Say No

One of the most difficult lessons a businessman has to learn is when to say no. But sometimes it can be the difference between profit and loss on a job. According to Dun & Bradstreet's survey on construction failures, the real cause in more than nine out of ten cases appeared to be management failures.

In 1940 the cost of the average home was \$5020, which represented 1.97 times the average purchaser's annual income. In 1950 the average cost of a home was \$10,140, or 1.96 times the purchaser's annual income. While building costs have doubled during the past ten years, the prospective home buyer's income has increased at a comparable rate.

During these same years, the labor

COST RECAPITULATION SHEET				
Name <u>Wayne A. Hopkins</u>		Date sold <u>12/10/56</u>		
Address <u>74 Pleasant Ave.</u>		Date completed <u>1/15/57</u>		
Salesman <u>T. R. Claser</u>		Contract no. <u>115</u>		
	Description, Type, Model, etc.	Estimated Cost	Actual Cost	
1.	Heating Equipment	85,000 Bluh gas furnace	\$ 204.50	\$ 204.50
2.	Air Conditioning Equip			
3.	Special Duct & Fitting		49.27	49.27
4.	Standard Fittings		65.87	61.32
5.	Sheet Metal		3.44	3.44
6.	Registers		30.61	30.61
7.	Electrical Equipment	(labor included)	25.00	25.00
8.	Plumbing Equipment	(labor included)	15.00	17.10
9.	Refrigeration Piping			
10.	Controls			
11.	Misc. Material	(humidifier)	9.95	9.95
12.	Drayage			
13.	Permits		5.00	5.00
14.	Sales Tax		18.90	18.90
15.	Finance			
16.	Electrical Labor			
17.	Plumbing Labor			
18.	Normal Labor		96.87	129.46
19.	Overhead		161.46	161.46
20.	Sales Commission		64.58	64.58
21.				
22.				
Estimated Profit			80.73	
TOTALS			\$831.18	\$780.59
(Sales LESS INVOICE Price)				\$831.18
PROFIT			Actual Profit	\$ 50.59
LOSS				

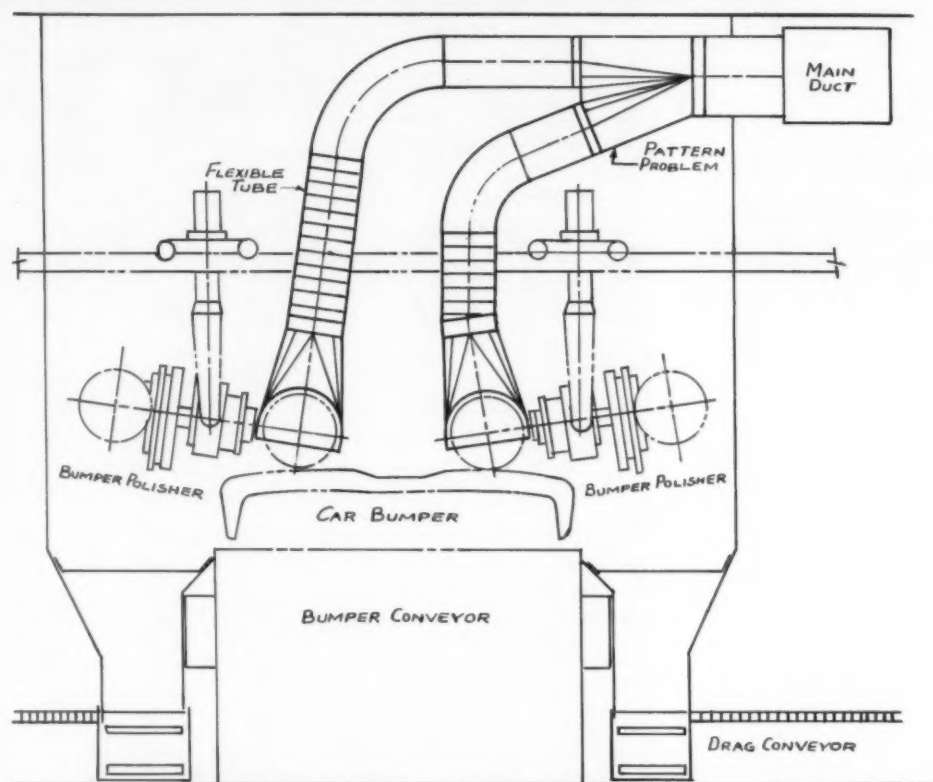
**2** COST RECAPITULATION FORM for sample job provides check of estimated costs against actual costs. Additional labor costs reduced actual profit to \$50.59 from estimated \$80.73 in this case

and material costs involved in making a warm air heating installation have risen proportionately with the rest of the economy. The advances and refinements developed over the past ten years in the control and distribution of air, to provide today's home owner with a greater degree of comfort enjoyment, have also added appreciably to the cost of installing a first class warm air heating system.

Yet the installation price of a heating system has today fallen from the once traditional 10 percent of the cost price of the new home to an

average nearer 5 percent. The industry deserves much credit for producing heating equipment today at nearly the same price as it did in 1930; yet even with this cost price advantage, the fact is that retail dealer-contractors, upon whom the success of this industry depends, are not all enjoying the full measure of profit to which they are entitled. This was reported in a bulletin prepared by the National Warm Air Heating and Air Conditioning Association and brings into focus the need for constant supervision by the dealer of all facets of his business.

## HUGH REID'S SHEET METAL PATTERN



1 PATTERN PROBLEM is applied in dust collection system for polishing operation where branch ducts must tie into main duct to dispose of heavy particles

*How to make a*

## Streamlined Wye Branch

*... with straight and angular legs, for  
a dust collection system which must handle heavy particles*

THE PATTERN PROBLEM presented this month is for part of a dust collection system for a production bumper polishing operation.

Hoods were installed over the polishers and a section of flexible tube duct included to permit working movement of the polishing heads.

In the polishing operation a cleaning compound was used which produced dust particles much too heavy to be conveyed by air to the dust collectors. This heavy

material was trapped by the chutes on both sides of the conveyor and directed into a drag conveyor which carried it to a tote box to be hauled away by truck.

The streamlined wye branch proved to be a very convenient fitting because of the close working limits between polishing heads; this type wye branch will also give a lower static pressure loss than the conventional type wye branch fitting.

Given the front and end views of a streamlined wye

branch fitting, the following is a step-by-step analysis of the pattern problem solution:

### Simplified Method Drawing, Fig. 3 —

a) Draw a  $1\frac{1}{2}$  in. horizontal line. Mark this line 1-7. From point 1, draw a line perpendicular to line 1-7. Measure the given 2 in. height as shown on Fig. 2A, and mark the point 8. From point 8, draw a perpendicular line to the right of line 1-8. Measure the given 1 in. diameter (Fig. 2A) and mark the point 14.

b) From point 14, draw a 30 deg. line downward and to the right. Measure the given lengths  $\frac{1}{4}$  in. and 1 in., (Fig. 2A), and mark the points 15 and 21. Draw a line from point 21 to point 7. From point 1, measure to the right one half the diameter ( $\frac{3}{4}$  in.) and mark the point 4'. From this point draw lines to points 14 and 15.

c) From point 8, measure  $\frac{1}{2}$  in. to the right, and mark the point 11'. From point 21', measure  $\frac{1}{2}$  in. to the left, and mark the point 18'. With point 11' as center and radius  $\frac{1}{2}$  in., draw a half circle above line 8-14. Divide the half circle into 6 equal spaces and mark the points 9, 10, 11, 12 and 13. From these points draw lines perpendicular to and intersecting line 8-14. Mark the intersection points 9', 10', 11', 12' and 13'. Mark lines 9-9' as M'; 10-10' as H'; 11-11' as E'; 12-12' as C' and 13-13' as A'.

d) With point 18' as center, and  $\frac{1}{2}$  in. radius, draw a half circle above line 15-21. Divide the half circle into 6 equal spaces, and mark the points 16, 17, 18, 19 and 20. Through the points draw lines perpendicular to and intersecting line 15-21. Mark the intersection points 16', 17', 18', 19' and 20'.

e) With point 4' as center, and radius  $\frac{3}{4}$  in., draw a half circle. Divide the half circle into 6 equal spaces and mark the points 2, 3, 4, 5 and 6. Through the points draw lines perpendicular to and intersecting line 1-7. Mark the intersection points 2', 3', 4', 5' and 6'.

f) Draw the work lines M, L, K, J, H, G, F, E, D, B, and C, N, P, R, S, T, U, V, X, W.

g) Subtract the length of line A' (on the  $\frac{1}{2}$  in. radius half circle) from the length of line 4'-4 (on the  $\frac{3}{4}$  in. radius circle) and mark the difference in lengths with the letter B'. Subtract line C' from line 4-4' and mark the difference with the letter D'. Subtract line length E' from line 4'-4 and mark the difference as F'.

h) Subtract line length E' from line 3-3' and mark the difference in lengths as G'. Subtract line H' from line 3-3' and mark the difference in length as J'.

i) The length of line 2-2' on the  $\frac{3}{4}$  in. radius half circle (marked K') is subtracted from line length H' on the  $\frac{1}{2}$  in. radius half circle, and the difference is marked L'. Subtract line length M' from line 2-2' and mark the difference as length N'.

### To Develop the Half Pattern, Fig. 4 —

a) Draw a vertical line and at the bottom of the line, establish point 4'. Next, draw a right angle to develop the

true length lines. From Fig. 3, transfer line B to the vertical leg of the right angle and fall distance A (equal to line 4-4') on the  $\frac{3}{4}$  in. radius half circle (Fig. 3) to the horizontal leg. The hypotenuse line AB is the developed line. With point 4' (Fig. 4) as center and radius AB, draw an arc on the vertical line, and mark the point 14'.

b) Transfer line C from Fig. 3 to the vertical leg of the right angle, and fall distance A to the horizontal leg. The hypotenuse line AC is the developed line. With point 4' (Fig. 3) as center, and radius AC, draw an arc to the right of point 14'. With the given  $\frac{1}{4}$  in. length (Fig. 2A) as radius and point 14' as center, cut arc AC and mark the point 15'.

c) From Fig. 3, transfer line D to the vertical leg of a right angle and fall distance B' from the  $\frac{3}{4}$  in. radius half circle to the horizontal leg. The hypotenuse line B'D is the developed line. With point 4' (Fig. 4) as center and radius B'D, draw an arc to the left of point 14'. With equal space distance 14-13 on the  $\frac{1}{2}$  inch diameter half circle (Fig. 3) as radius and point 14' (Fig. 4) as center, cut the arc B'D, and mark the point 13'.

d) The line E is transferred from Fig. 3 to the vertical leg of a right angle, and the fall distance D' on the  $\frac{3}{4}$  in. radius half circle, to the horizontal leg. The hypotenuse line D'E is the developed line. With point 4' (Fig. 4) as center, and radius D'E, draw an arc to the left of point 13'. With arc length 13-12 on the  $\frac{1}{2}$  in. diameter half circle (Fig. 3) as radius and point 13' (Fig. 4) as center, cut the arc D'E, and mark the point 12'.

e) Transfer line F and fall distance F' from Fig. 3 to the horizontal and vertical legs of a right angle. The hypotenuse line F'F is the developed line. With point 4' (Fig. 4) as center, and radius F'F, draw an arc to the left of point 12'. With arc length 12-11 (Fig. 3) as radius, and point 12' (Fig. 4) as center, cut the arc F'F, and mark the point 11'.

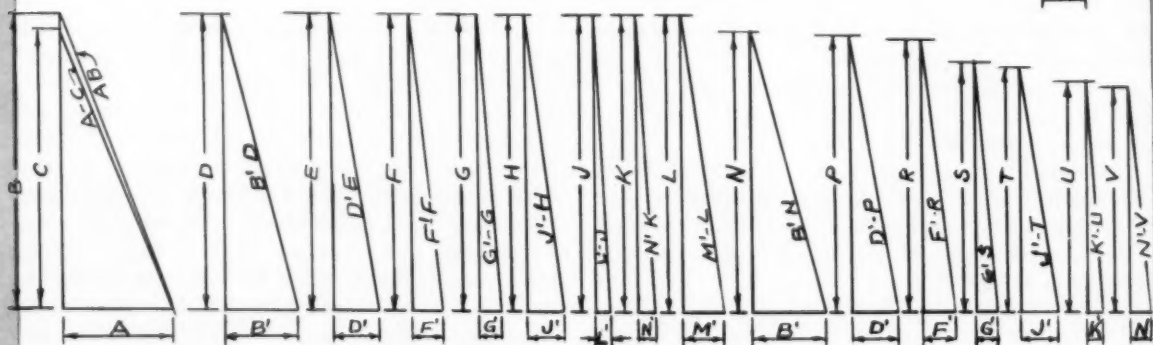
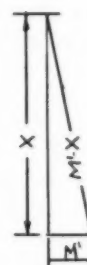
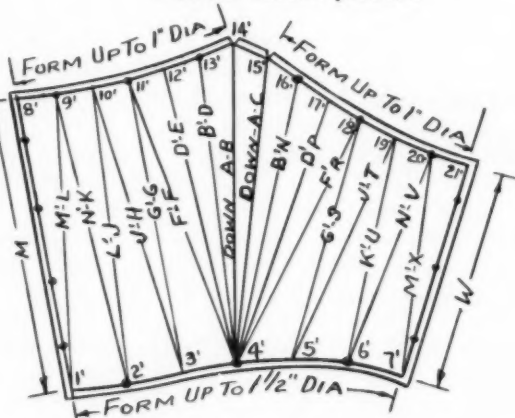
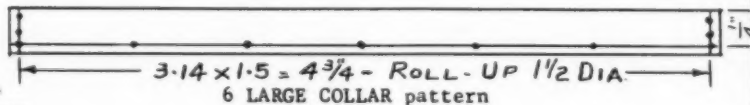
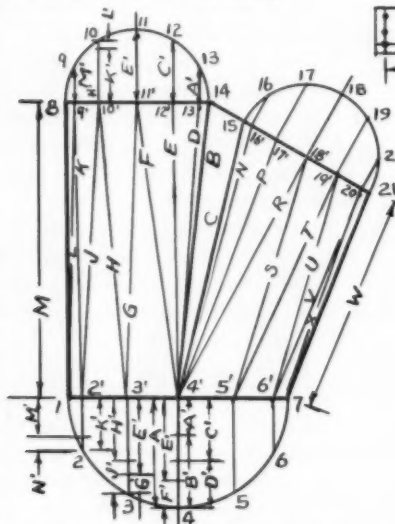
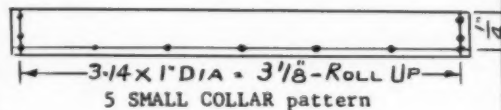
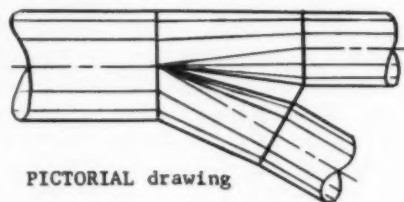
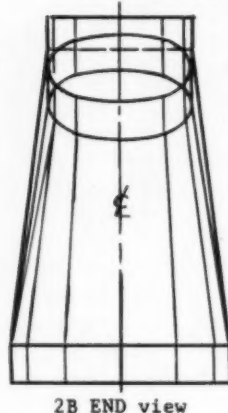
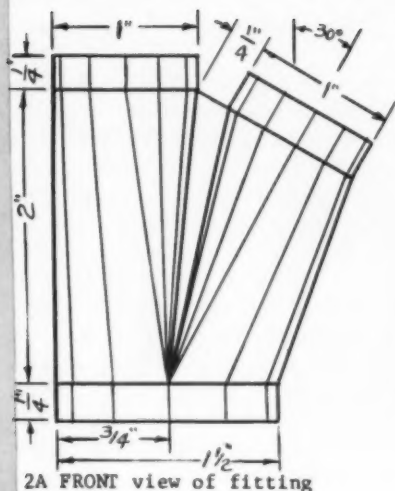
f) Transfer line G from Fig. 3 to the vertical leg of a right angle, and fall distance G' to the horizontal leg. The hypotenuse line G'G is the developed line. With point 11' (Fig. 4) as center and radius G'G, draw an arc to the left of point 4'. With arc length 4-3 (Fig. 3) as radius and point 4' (Fig. 4) as center, cut the arc G'G, and mark the point 3'.

g) The line H is transferred from Fig. 3 to the vertical leg of a right angle, and the fall distance J' is transferred to the horizontal leg. The hypotenuse line J'H is the developed line. With point 3' (Fig. 4) as center, and radius J'H, draw an arc to the left of point 11'. With point 11' (Fig. 4) as center, and arc length 11-10 (Fig. 3) as radius, cut the arc J'H and mark the point 10'.

h) From Fig. 3, transfer line J to the horizontal leg of a right angle, and fall distance L' to the horizontal leg. The hypotenuse line L'J is the developed line. With point 10' (Fig. 4) as center, and radius L'J, draw an arc to the left of point 3. With arc length 3-2 (Fig. 3) as radius and point 3' (Fig. 4) as center, cut the arc L'J and mark the point 2'.

i) Transfer line K and fall distance N' from Fig. 3 to

Note: Drawings have been reduced 10 percent in size for reproduction on this page





the horizontal and vertical legs of a right angle. The hypotenuse line N'K is the developed line. With point 2' (Fig. 4) as center, and radius N'K, draw an arc to the left of point 10'. With arc radius 10-9 (Fig. 3) as radius and point 10' (Fig. 4) as center, cut the arc N'K and mark the point 9'.

j) The line L and the fall distance M' (Fig. 3) are transferred to the vertical and horizontal legs of a right angle. The hypotenuse line M'L is the developed line. With point 9' (Fig. 4) as center, and radius M'L, draw an arc to the left of point 2'. With arc length 2-1 on the 1½ inch diameter half circle (Fig. 3) as radius and point 2' (Fig. 4) as center, cut arc M'L, and mark the point 1'.

k) With line M (Fig. 3) as radius and point 1' (Fig. 4) as center, draw an arc to the left of point 9'. With arc length 9-8 as radius, and point 9' (Fig. 4) as center, cut the arc M, and mark the point 8'.

Note: The two small duct diameters are equal. Therefore, the fall distances A, B', D', F', G', J', L', N' and M will be identical for both legs of the wye.

l) Transfer lines N, P and R and fall distances B', D' and F' to the respective horizontal legs of right triangles. The hypotenuse lines B'N, D'P and F'R are the developed lines. With point 4' (Fig. 4) as center and radii B'N, D'P and F'R, draw arcs to the right of point 15. With equal space 15-16 (Fig. 3) as radius and point 15 (Fig. 4) as center, cut the arc B'N, and mark the point 16'. With point 16' as center and arc length 16-17, cut the arc D'P and mark the point 17'. With point 17' as center and arc length 17-18, cut the arc F'R and mark the point 18'.

m) Transfer line S and fall distance G' from Fig. 3 to the legs of a right angle. The hypotenuse line G'S is the developed line. With point 18' (Fig. 4) as center, and radius G'S, draw an arc to the right of point 4'. With arc length 4-5 (Fig. 3) as radius and point 4' (Fig. 4) as center, cut the arc G'S, and mark the point 5'.

n) The line T and the fall distance J' are transferred from Fig. 3 to the vertical and horizontal legs of a right angle. The hypotenuse line J'T is the developed line. With point 5' (Fig. 4) as center and radius J'T, draw an arc to the right of point 18'. With arc length 18-19 (Fig. 3) as radius and point 18' (Fig. 4) as center, cut the arc J'T, and mark the point 19'.

o) Transfer the lines U, V and X in the order given to the vertical legs of right angles, and fall distances K', N' and M' to the respective horizontal legs. The hypotenuse lines K'U, N'V and M'X are the developed lines. Beginning at point 19' (Fig. 4) as center, transfer these lines in their proper sequence to the pattern as shown by K'U, N'V, M'X. The equal spacing on the small diameter half circle is used for the top spacing of the pattern to locate points 19' and 20', and the equal spacing on the large diameter half circle is transferred from Fig. 3 to the half pattern (Fig. 4) to develop points 5', 6' and 7'.

p) Set a compass at line W (Fig. 3) and with point 7' (Fig. 4) as center, draw an arc to the right of point 20'. With arc length 20-21 (Fig. 3) as radius and point 20' (Fig. 4) as center, cut the arc W and mark the point 21'.

Add allowances for seams and joints, lay out the rivet holes, and mark the pattern for forming.

## How to Make the Most of Home Show Display

HOME SHOWS have proved extremely effective for heating-cooling dealers in affording an opportunity to display their products and demonstrate their services, under ideal conditions, to many people whom they would be unable to contact otherwise. Some of these people are pre-sold; all are there because they want to take the time to inspect the products on display. Here are a few tips for providing the most possible pulling power for the heating-cooling display, as recommended by Armstrong Furnace Co. News and Notes.

1) *Plan your display.* Figure the size of your booth, based on space costs, amount of equipment to be displayed, and general sizes of booths being planned by other exhibitors. Plan arrangements for equipment, making the exhibit attractive and comfortable.

2) *Attract attention.* The number of people who visit your display will be directly affected by the amount of attention you attract. Location and size are important. Personal activities, decorations and "gimmicks" will draw the attention of passers-by.

3) *Man your exhibit.* This exhibit is a selling venture. Man the booth with people who can do a good selling job. Many of your visitors will not know you or your product—their first impressions will be those based on the treatment they receive in your exhibit.

4) *Register your visitors.* While heating and cooling equipment is not usually sold on the spot, a display booth is a good place to line up prospects. Gather names by having salesmen fill out cards, getting visitors' names and product preferences; or have contests or some other incentive for visitors to fill out simple

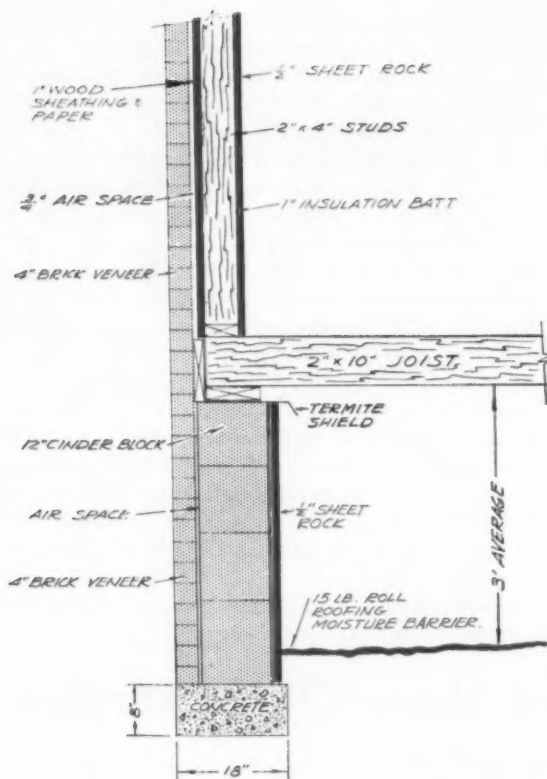
registration cards for prospect files.

5) *Use visual aids.* In addition to the equipment on display, keep manufacturers' literature and sales helps on hand. Cutaway drawings showing important points of heating-cooling systems are impressive.

6) *Use novelties.* Giveaway items with your firm name, address and telephone number serve as permanent reminders and attract visitors to your booth.

7) *Follow up your prospects.* Every name obtained during the show should be followed up as soon as possible either by the dealer or his salesmen. Those visitors who are considered good prospects should be contacted immediately; others, in the order of their indicated interest in your products and services. Every name obtained at the home show should represent a contact by phone, by mail, or in person.

# Heating Study Evaluates



**1** CRAWL SPACE-supply plenum averages about 3 ft in height, is insulated by poorly applied 15 lb roofing paper, 1/2 in. sheet rock, cinder blocks and air space inside brick veneer

For its first test in this series, the NWAHACA Mobile Laboratory moved into the first floor apartment of a two-story addition to an existing building. The facts presented in this report on the unusual heating system speak for themselves as suggestions for improved engineering and installation methods

IMPROVED ENGINEERING and installation practices are inevitable when performance data from actual jobs can be evaluated to point out the principles employed and the results of their application. With this objective in mind, the National Warm Air Heating and Air Conditioning Association undertook a study of five forced warm air heating systems in different houses that point the way to better heating performance, both from a comfort and a mechanical point of view. This and subsequent articles in this series are reports of the results obtained from the study.

Dealers who, on each job, study the physical aspects of the building, the type of equipment used and its operation characteristics will find ways to improve their current practices with greater benefit to the customer and fewer service problems to solve. This first article describes a crawl space plenum system consisting of four 8 in. diameter stub ducts from the subfloor warm air plenum and 10 registers.

## Living Areas Overlap

This system is for a two story, two apartment addition to an existing building. The second floor apartment of this addition is a complete entity, but the first floor apartment has a kitchen, dining area, and bath in the basement of the old structure. The existing building is heated with a hot water system, but the new addition has separate warm air heating systems for each of the two apartments. The heating system for the first story apartment is covered in this report. That of the second floor apartment will be covered in a second report in this series of articles.

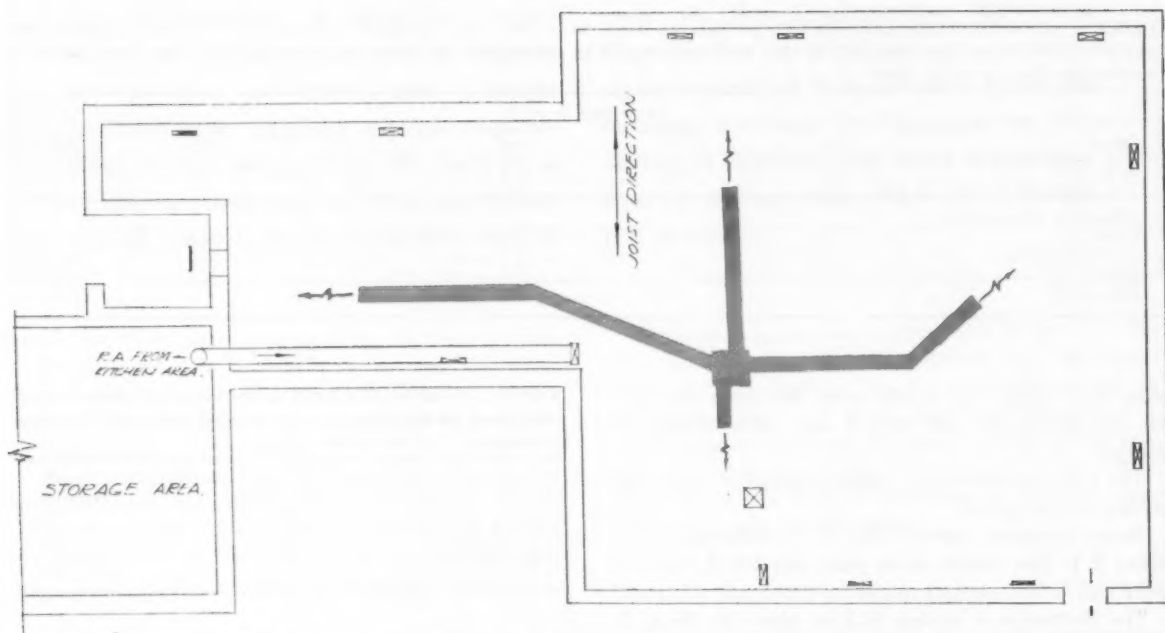
The walls of the new building are of brick veneer over 1 in. thick wood sheathing on 2 x 4 in. studs. Dry wall construction is used for the inside wall surfaces. Walls are insulated with 1 in. mineral wool batts.

The addition with the two apartments was completed in 1953 at a total cost of \$24,000, not including land and garage.

## Vapor Barrier Poorly Applied

The construction of the crawl space is shown in Fig. 1. The vapor barrier over the crawl space earth is poorly applied 15 lb roofing paper. The mobile laboratory investigator noted that the earth had not been smoothed over and that there appeared to be assorted debris beneath it, that the barrier was torn in places and that it did not entirely cover the earth. No wall vent openings were provided.

# Crawl Space Plenum System



**2** SUPPLY SYSTEM consists of 75,000 Btuh oil-fired counterflow furnace with four 8 in. round branch stub ducts connected to subfloor plenum

Wet earth was visible and water was standing in several areas after a heavy rain during the investigation. The crawl space is also used as a storage area, containing two large fuel oil tanks, a large water tank, and a collection of lumber, sheet metal, ladders, etc. Using a crawl space that functions as a warm air supply plenum as a storage area is generally considered poor practice.

The inside surfaces of the outside walls of the crawl space are covered with  $\frac{1}{2}$  in. thick gypsum board.

The design temperature is  $+10$  F and the degree days for the locality average about 4200 for the year.

## Design Heat Loss Is Small

The design heat loss for the first story rooms is 20,676 Btuh, and that for the crawl space is 13,935 Btuh; a total of 34,611 Btuh. The small design heat loss can be attributed to the fact that there is no ceiling heat loss because of the heated apartment above. The loss amounts to 29.9 Btuh per sq ft of floor area.

The furnace is an oil-fired counterflow unit. The masonry warm air plenum located below the floor is  $20 \times 20 \times 28$  in. The furnace, with a 0.75 gph nozzle, is rated at 75,000 Btuh bonnet capacity. The blower, rated at 800 cfm against 0.20 in. external resistance, is driven by a  $\frac{1}{4}$  hp motor.

The four 8 in. round branch stub ducts connected to the subfloor plenum are varied in length — the shortest is 2 ft; the longest, 18 ft. Four  $14 \times 4$  in. floor registers, six  $14 \times 2\frac{1}{4}$  in. floor registers and one  $14 \times 4$  in. register in the stair riser provide the outlets for the supply air. Also connected to the supply system are two openings in the floor under the bathtub to provide heated air for warming the tub. This is a low resistance system.

A large air plenum box over the bathroom ceiling collects the air for the return system. To this plenum is connected a  $24 \times 10$  in. low wall return air intake from the middle hall, a stud space riser from under the bath tub, and a  $12 \times 4$  in. riser from an 8 in. round duct from the kitchen storage space area.

## Combustion Air Supplied

A special  $12 \times 4$  in. duct was provided to convey attic air to the furnace room for combustion purposes. The furnace closet is fire-resistant with a clay tile floor and brick-cinder block walls.

The weather was mild and relatively constant during the first four days of the test, ranging from 40 F to 56 F. On the fifth day the outdoor temperature increased suddenly to nearly 80 F. During most of the period, the

**"Two middle-aged people occupy the first floor apartment. They expressed a preference for the new heating system over that in the older section of the house (wet heat) because of the 'more even heat.'"**

**TABLE 1—TEMPERATURE DIFFERENTIALS** between floor, 30 in. level and ceiling on relatively mild day (42 F outdoor temperature, 71 F thermostat setting) hint that conditions would be undesirable at design temperature. Note that floor surface is warmer than floor air in all rooms

Room	Temperatures in deg F.					Average
	Den	Middle hall	Living room	Bed-room	Bath-room	
3 in. below ceiling	73.5	73.9	73.8	74.9	75.4	74.3
30 in. level	72.8	74.3	72.8	73.7	73.3	73.4
3 in. above floor	72.5	73.1	72.5	73.3	73.6	73.0
Differentials between levels						
Ceiling-floor	1.0	0.8	1.3	1.6	1.8	1.3
30 in. level-floor	0.3	1.2	0.3	0.4	-0.3	0.3
Floor surface	73.8	73.9	73.9	73.5	76.8	74.4
Floor air to floor surface	-1.3	-0.8	-1.4	-0.2	-3.2	-1.3

skies were cloudy and a mild wind blew from the west. On the fourth and fifth days it was either raining or misting.

The following settings of control equipment were used during the test period:

Room thermostat setting was 71 F; differential was about 2 F. Fan switch cut-in point was 140 F; cut-out point was 55 F.

The thermostat is located 62.5 in. above the floor. A 6 in. barometric draft regulator is used in the smoke pipe. No preliminary adjustments were made before the test was started.

### Warm Air Supplies 'More Even Heat'

Two middle-aged people occupy the first floor apartment. They expressed a preference for the new heating system over that in the older section of the house because of the "more even heat." Operating costs are considered high — total fuel oil consumption was 703 gal for a season of 3907 degree days.

The tests recorded in Table 1 show that in every case the floor surface was warmer than the floor air; this was particularly noticeable in the bathroom where floor panel heating is used. To some extent, the bathroom ceiling probably serves as a panel heating surface, since the air is first circulated below the bathtub and then carried to the ceiling return air plenum box.

### Room Differentials Not Excessive

The living room temperature differential of 1.3 deg from floor to ceiling amounted to 0.54 deg per 10 deg change in indoor-outdoor temperature difference during the test. The temperature differential of 0.3 deg from floor to 30 in. level amounted to only 0.13 deg per 10 deg change. Both values are rather low and are most acceptable from the standpoint of comfort.

Air temperatures measured at the 30 in. level ranged

**TABLE 2—FLOOR SURFACE** temperatures of various rooms vary up to 3.8 deg from center to exposed wall at 42 F outdoor temperature, 71 F thermostat setting

Room	Floor Surface Temperature, deg F	
	Center of Room	Exposed Wall
Den	73.8	72.0
Middle hall	73.9	74.1
Living room	73.9	71.3
Bedroom	73.5	71.0
Bathroom	76.8	73.0

from a minimum of 72.7 F in the living room to a maximum of 74.3 F in the hall, a difference of 1.6 deg.

Warm air issues from the subfloor plenum at relatively high temperature — approaching 170 F — but is considerably cooler by the time it reaches the warm air registers. Obviously, further cooling of the circulating air occurs in the living area. The register air temperature measurements show a 14 deg range, which is not considered excessive. Room air temperatures probably are fairly constant during a burner cycle, in spite of large variations in bonnet air temperatures.

### Register Air Velocities Under 200 fpm

Register air velocities do not exceed 200 fpm, which is rather low. No relationship was observed between the air flow rate at each register and the distance from the plenum or the position of the register with respect to the end of the branch duct in the crawl space.

The air flow rate calculated from register velocity was 447 cfm. From the return air intake velocity it was 470 cfm, and from the furnace heat balance, 722 cfm. Since the latter value was calculated from a fuel input based only on burner nozzle rating, and was not figured from a measured fuel input, it was not considered as reliable as the 470 cfm determined from the intake. The value of 470 cfm corresponds to about 3.0 air recirculations per hour, which is not out of line with values obtained from other tests.

As might be expected from a system which depends



## FIELD TESTS SEEK SUGGESTIONS FOR IMPROVED HEATING PRACTICES

**The National Warm Air Heating and Air Conditioning Association maintains a mobile laboratory which moves into an area and surveys heating and cooling equipment installed in residences. No effort is made to alter any of the conditions found. Data is secured by the mobile**

**laboratory technician and turned over to the Engineering Advisory Council for evaluation. A summarized report of five unusual types of heating systems is reported in this series of articles. The tests were conducted during the 1954-1955 heating season.**

largely on a floor panel heating effect, the floor surface temperatures both in the middle of the room and along the exposed walls were all above 70 F. The floor surface temperatures recorded during one of the tests are given in Table 2.

The relative humidities and dew point temperatures for living room and crawl space are remarkably similar, which is understandable since the crawl space is a warm air plenum and all air is circulated through the crawl space before being admitted to the room.

### Find Extensive Moisture Pickup

The relative humidities at the time of the test were about 38 percent for an outdoor temperature of 49 F, which is high but not excessive. Except for the last day when a sudden wave of warm air rolled in, the indoor dew point temperatures were considerably higher than those outdoors, indicating extensive moisture pickup. Much of this may have been from exposed wet earth in the crawl space. (In this connection the mobile laboratory investigator reported that there was a leak in the southwest wall.)

### Crawl Space Air Is Dry

Seventeen moisture readings were taken at various points on the woodwork in the crawl space. All the readings were 6 percent except for one reading of 7½ percent. These moisture readings are low, but consistent with the fact that heated air was discharged into the space, causing a drying action. If there is to be any trouble due to high moisture content it would be during the spring and summer when the heating system is not in use.

The crawl space is not vented to the outdoors.

The total static pressure of 0.13 in. of water found in this system is low. The value of 0.03 in. for the warm air duct system is especially low. The four 8 in. ducts with a duct area of 201 sq in., or 1.39 sq ft, permit air to flow at an average duct velocity of 340 fpm, which is also low.

Evidence suggests that burner input is probably less than the 0.75 gph rating. On a typical cycle, the burner operated 85.8 percent of the time when the outdoor air temperature was 41 F. If the data were extrapolated to colder weather conditions the burner should operate continuously when the outdoor temperature reaches 37 F. If so, the burner input is insufficient to heat the apartment adequately in cold weather.

### Findings Suggest Fuel Input Deficiency

At the same time, the study showed the temperature rise between supply and return air temperatures was only 82 deg, which indicates either an ample supply of air over the heat exchanger or a deficiency in fuel input. The latter possibility seems more realistic.

The fact that the blower operated continuously when the outdoor temperature was 41 F indicates that CAC principles were followed. On the other hand, the fan switch cut-in point was 140 F and the cut-out point was set at 55 F. Obviously, once the blower began to operate, it would be likely to continue for the remainder of the heating season. As a matter of fact, it would operate all during the summer until the switch was finally disconnected.

### Fuel Consumption High

The actual fuel consumption of 703 gal for a degree day total of 3907 degree days was high. Assuming the validity of the calculated design heat loss of 34,611 Btuh, the actual fuel consumption gave an indicated overall efficiency of only 55 percent, which is unusually low. The probability is that the overall efficiency is greater than 55 percent; which in turn is an indication that the design heat loss was actually greater than 34,611 Btuh. This is a distinct possibility for a crawl space plenum system.

The heating system for the second floor apartment in the same addition will be described in the second article of this series next month.

## Houses like these . . .



CONVECTION and air movement between floors creates problems in heating many split level homes



MODERN DESIGN often places rooms over open or unheated areas, adding to heating difficulties

# Zone Controls Are Needed

**. . . to solve the heating-cooling problems  
presented by modern construction and occupancy habits.  
But too often this fact is ignored, says C. W. Nessel**

WHEN THE field investigation committee reviewed the operating characteristics of the heating systems in 80 homes which it had surveyed, we discovered that in spite of the industry's "know how," the comfort conditions in too many homes are poor.

For example, we discovered that only 30 of the 80 jobs provided for continuous air circulation with continuous blower operation when the outdoor temperature dropped to 35 F. On one job the outdoor temperature had to drop to zero for CAC operation.

Only 31 jobs had performed with a temperature variation between burner operations of  $1\frac{1}{2}$  deg or less. Only 39 had floor to sitting level temperature differences less than 3 deg at an outdoor temperature of 30 F.

### Low Floor Temperatures Common

Only 29 of 50 basementless houses had floor surface temperatures 65 F or warmer in the centers of the rooms, and these were better than usual installations. Had we concentrated on typical project houses, the percentage with favorable floor surface temperatures would have been pitifully small. Floor surface temperatures in the occupiable areas along the outside walls and corners in

all but a very small percentage were far too cold for comfort.

General industry practice indicates that a well balanced job should have no more than a 3 deg temperature difference between rooms. In other words, 72 F in one room, 71 F in another and perhaps 74 F in a third, and this should continue around the clock. However, these reports indicate an inherent difficulty in maintaining a room-to-room temperature balance within 2 or 3 deg and a further difficulty in keeping it consistent throughout the day.

A review of field data shows that only 31 jobs out of 80 had room-to-room temperature differences within the desired 3 deg. In some the differences were as high as 7 to 10 deg. This suggests improper balancing or no balancing at all, but this is not always the case. Job data taken in the evening shows that many of these jobs were balanced as well as you or I or anyone else could possibly balance them. The wide temperature variations were due to changes in heat losses in rooms or entire

[Note: Second of a series of three articles taken from an address by C. W. Nessel, heating industry consultant, Minneapolis-Honeywell Regulator Co., at the annual convention of the National Warm Air Heating and Air Conditioning Association.]

*... are often uncomfortable*



SPREAD OUT floor plans are common in custom built homes and provide wide variations in heat loss



PICTURE WINDOWS are the rule in today's houses and they create many heating problems

areas of the house as the orientation of the sun affected various wall, glass, and roof surfaces.

Nor do these cold figures tell the full story. The differences reported were based on average room air temperatures taken hourly from mid-morning to mid-afternoon on a single day. The data does not reflect variations of temperature within a given room or an area throughout the day, nor does it indicate the change in room air temperatures at night or with variations in outdoor weather, such as the direction or intensity of the sun and wind.

### Houses Changed Radically

There have been some radical changes in house construction and occupancy habits over the past 15 years. The old style two story box house was satisfactorily handled by a single thermostat. But look what has happened. Here are some of the things we are up against today:

**1** Picture windows in the old days were almost unknown. There might have been a large window in the parlor, but it was usually protected by a porch. Now it is the exceptional house, even in the low price group, that does not have at least one picture window. Glass areas now extend practically from the floor to the ceiling. Sometimes an entire outside wall of one or more rooms is made of glass.

We are seriously concerned over heat gains through glass when we design for summer cooling. However, we disregard the fact that heat gains through windows in the winter are often severe enough to overheat a room, thus affecting the thermostat and unbalancing the room-to-room air temperature differences throughout the entire home.

At night these conditions are completely reversed. The glass areas become important areas of heat loss. Rooms with large glass areas lose more heat than those with a normal amount of glass.

**2** Many of today's homes spread out in all directions, in contrast with the conventional box style of 15 years ago. The more the house spreads the greater are the effects of sun, wind, and weather. Thus, it is possible to have overheating and undercooling in some sections and exactly the opposite condition in other areas of the home.

Fifteen years ago there were virtually no U shaped, L shaped or H shaped homes in the low and medium priced class. Now we have them in increasing numbers in the middle and higher priced range. These houses are literally two or more houses with respect to heat loss and gain. It is evident that more than a single thermostat will be required if the desired comfort level is to be maintained in each of the distinctively separate areas of these irregularly shaped homes.

**3** At the same time that we are coping with the problems of spread out houses, we are faced with the problem of an opposite trend. The high cost of land and the need for larger houses have brought about the return to plans utilizing one or more levels. But these houses are not the conventional box style. Many have rooms over garages or projecting out over a patio or a carport or an unexcavated part of the home. The heating or cooling requirements of such rooms are often different from the rest of the house.

**4** In our investigation of split level homes, we found the upper levels overheated, the middle level reasonably comfortable, and the lower level invariably too cold. This severe temperature unbalance is due primarily to convection and air movement between floors and to the greater exposure of some parts of the house to outside weather conditions.

**5** Basement occupancy is increasing in popularity in many areas of the country. The basement space, which may be utilized for family rooms, game rooms, and even for sleeping quarters, has very special heating and cooling requirements.

The above ground area of such a home on a warm,

sunny winter day may require but little heat. But in the basement heat losses through the cold wall will demand a substantial amount of heat. Provisions must be made for both sets of conditions.

**6** Providing for separate sleeping and living area temperatures simultaneously is completely in tune with today's occupancy habits. This has been shown in the field investigation surveys. For example, the homeowner may desire more cooling in the living area of the home to offset changing weather effects or the additional heat load created when entertaining in the living area. On the other hand, during sleeping hours the homeowner may desire more cooling in the bedrooms and less in the

unused living area. Similar differences would be desired in the heating season.

There is little doubt that the heating and cooling industry must realign its thinking concerning the number of thermostats required in today's homes. In fact, the comfort conditions that the industry is striving for will only be a promise instead of a fact if this problem is not recognized and solved.

The inevitable conclusion is that because of changes in house construction, the use of larger glass areas, spread out floor plans and split levels, it will be impossible to maintain good room-to-room temperature balance without two or more thermostats in many, many homes.

## Insulation Saves Money for Builder and Owner

THE USE OF thick insulation in a home can actually reduce building costs for houses with summer air conditioning by permitting use of equipment with less capacity, a recent study shows. In addition, the study supports the belief that thick insulation reduces annual heating and cooling costs substantially.

This research project was conducted by John R. Watt, associate professor of mechanical engineering at the University of Texas. He used cost data from eight well-insulated houses in the famous Air Conditioned Village at Austin, Texas. He then calculated what these costs would have been if the houses had been insulated only in accord with current FHA minimum requirements.

The FHA requirements are based upon heat transfer coefficients of walls and ceilings, and naturally vary with local climate. In Austin, FHA requirements in effect require no wall insulation and only the equivalent of 1½ in. mineral wool insulation in the ceiling.

Many architects and builders consider these FHA requirements to be too low, encouraging the construction of houses which will be cold and drafty in the winter, hot in summer, and expensive to equip and operate. Prof. Watt's study was performed to determine some of the facts.

For easiest comparison, the eight homes selected for the study were insulated entirely with mineral wool, although other comparable insulation would have served as well. All were insulated well beyond minimum FHA requirements, having an average of 5 in. of insulation in the ceiling and 2½ in. in the walls.

The homes represented most types of modern construction, including frame, brick veneer, solid masonry, and combinations. All had gas-fired warm air central heating combined with two-ton cooling systems. Two cooling systems used air cooled condensers, the others used water from cooling towers. Seven were driven by electricity and one by gas.

In making the analysis, the known summer heat gains and winter heat losses of the eight houses were recomputed as if they had been insulated according to FHA minimums. The difference in insulation costs was cal-

culated, using a price of 32 cents per cu ft installed, the average obtained from local dealers.

Equipment sizes were selected to fit the new data. The furnaces had been initially oversized to give greater cooling air flow; therefore, most of the heating equipment remained adequate in size even though winter loads were almost doubled. However, small increases in summer heat gains required substitution of three ton cooling coils with corresponding compressors and condensing equipment.

Local dealers supplied equipment change costs. In the lowest quotation, three tons cost \$223.75 over two ton equipment. Although most brands had greater differentials, this minimum figure was used in the study.

In one case, use of FHA minimum requirements raised cooling loads well over three tons, creating an equipment selection problem, since four ton equipment is non-standard. If two two-ton units had been used, the cost with ducting complications would have been raised by \$774.25. With only a slight increase in insulation, three ton equipment would have been feasible, thereby saving \$550.

To determine operating costs if the houses had been built according to FHA minimum requirements, the known heating and cooling costs of each house during a given year were increased in proportion to the greater calculated heat losses and gains.

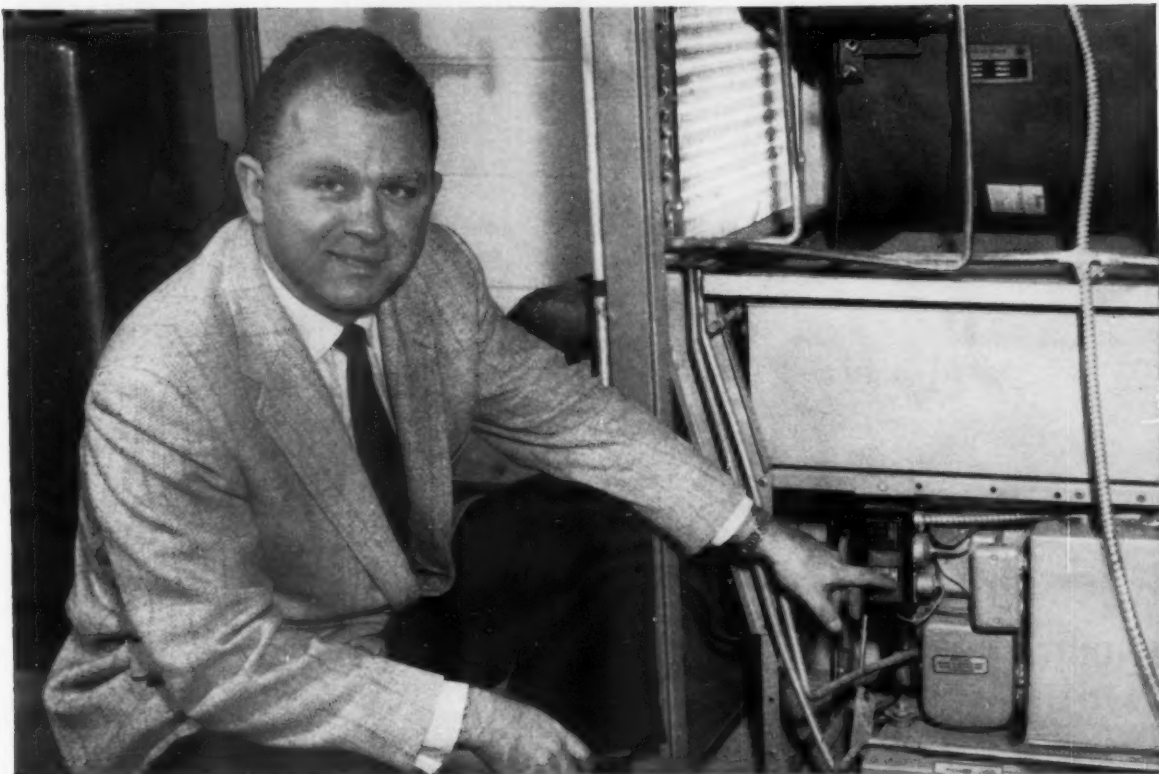
Conclusions from the study are as follows:

1) The use of adequate insulation in excess of current FHA minimum requirements does not increase building costs because resulting equipment savings equal or exceed insulation expense. In this study the savings realized by the builder through use of smaller capacity equipment after subtracting the cost of added insulation averaged \$139.60 per house.

2) Use of insulation in excess of current FHA requirements reduces annual heating-cooling costs almost proportionately. The average annual heating-cooling savings for the homeowners in this study was \$107.90. Fuel costs were figured at 10 cents per effective therm, power at 2 cents per kwh and water at 25 cents per gal.



## AIR CONDITIONING IS PROFITABLE BUSINESS!



*"Builders give us the edge, because we install both heating and air conditioning"*

—Reports Robert Ariosa of L. H. Cranston & Sons, Inc., Baltimore, Md.



• Home (above) has new American-Standard chilled-water air conditioning system installed by Cranston. System gives owner control of individual room temperatures and eliminates need for ductwork. Cooling system is factory-charged with "Freon-22".

"Since we went into air conditioning three years ago, our ability to handle heating or cooling has given us a real competitive advantage," says Robert Ariosa, treasurer, L. H. Cranston & Sons, Inc., heating and air conditioning contractors. "Builders like to use a firm that can do both. Most of our work is residential, but we're getting some commercial jobs, too. We're working now on a 50-ton air conditioning system plus the heating for an office building. This is the kind of job we could not get before we went into air conditioning.

"American-Standard equipment goes into all our jobs," continues Mr. Ariosa. "It comes charged with Freon\* refrigerants. They recommended 'Freon' to us when we started in air conditioning, and it's always given us safe, trouble-free service."

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performance for all types of air conditioning installations. So when you need a refrigerant, always ask your complete air conditioning and refrigeration wholesaler for acid-free, dry, safe "Freon" refrigerants.

**FOR MORE INFORMATION** about the profitability of home air conditioning, write E. I. du Pont de Nemours & Co. (Inc.), "Freon" Products Division #245, Wilmington 98, Del.

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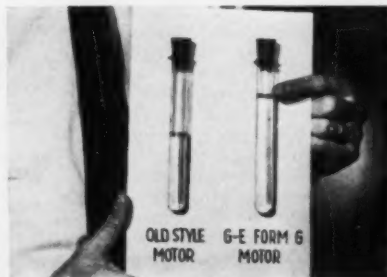
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**SPEED NUT** welded inside shell of G-E fhp motor permits fast outside connection of conduit fitting.



**DOUBLE LUBRICATION LIFE** provided by 50% more oil, and efficient oil retention system cuts maintenance to a minimum.



**REPLACEMENT MOTORS** are also available locally. G-E Form G replacement motors provide top-quality, long-life performance.

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WIN-SUM-MATIC

**year 'round  
air conditioner**



**COMPACT...**

Fits in as little as 4 1/2 square feet!  
Features Multi-Thermex Gas Heating Heart  
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**New**  
**JANITROL®**  
 7-point  
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Compact Win-Sum-Matic fits in little as 4 1/2 sq. ft. of floor space. Uses single duct system to heat and cool, is easily linked to existing warm air ductwork. Handsome cabinet includes evaporator coil housing.

Air-cooled "PRIDE O' YARD" compressor-condenser is low, sleek, beautiful—safe for children and pets. Exclusive top-mounted fan boosts efficiency, throws exhaust air upward, protects nearby growing things.



**A full line with a famous reputation for quality...and starring WIN-SUM-MATIC!**

It's no longer news that today's booming market for air conditioning offers fat profit opportunities. The question is: How can you get *your* share? ... At a profit!

Here, in one tidy "package", is your answer. ... the Janitrol Win-Sum-Matic, combining powerful waterless cooling and thrifty gas heating. Available in upflow and downflow models for easy installation in any home—loaded with features no other unit has. For example:

... Wrapped up in its exclusive "PRIDE O' YARD" air cooled compressor unit are new engineering advancements to insure powerful, economical cooling with outside air to 125° F. PLUS—salesmaking beauty that shames ordinary "dog house" models!

... A unique by-pass eliminates heat exchanger resistance on cooling cycle, gives correct air flow for heating and cooling without seasonal adjustments.

... Add-On cooling option expands your sales potential. Even though you install Win-Sum-Matic for heating only, *you protect your cooling profit!* When your customer decides on cooling, Add-On components are easily added.

There's more, much more, to set you up for big sales and profits. So take a minute now to check the rest of Janitrol's great new 7-point dealer profit plan. Then take action—get your **GOLDEN KEY TO PROFITS** with Janitrol!

## 2 new, low trade net prices

Advanced Janitrol engineering—new automated production methods—volume building sales leadership—all add up to more profits on every sale. This new Janitrol pricing plan lets you move in on competition with top-quality Janitrol products at *really competitive* prices!

## 3 new dealer stocking plan

As a Janitrol dealer qualified under this new plan, you'll keep your working capital *working*, instead of "freezing" it in inventory. You'll have the inventory you need for prompt deliveries, better service, year 'round.

## 4 new retail customer finance plan

Makes Janitrol cooling and heating easily available to the six out of ten families who haven't the cash but have the credit ... on easy installment terms. No down payment. Up to three years to pay. Finance up to \$3500. No risk or recourse to dealer, no collection problems. Eliminates red tape and delay. Keeps "hot" prospects from cooling off!

## 5 new local level promotions — to the rich modernization market

A high-impact, sales-producing merchandising program created by Janitrol for your needs, your market, your profit ambitions! Newspaper ads, radio and TV musical announcements, window and in-store displays, color-illuminated outdoor signs—all yours as a qualified Janitrol dealer. And Janitrol sets up the complete program to the last detail, saves your time for selling.

## 6 new builder promotion package

A complete merchandising program to help you snare your share of the new house market. Chock full of tested promotion ideas that give you a running start on competition—let you offer the builder a service that enables him to upgrade his houses with quality Janitrol equipment, appeal to more prospects, *stay competitive!*

## 7 new select dealer program

Today, Janitrol recognizes a new era in company-dealer relations. The days of "playing it by ear" are no more. There's a need for continuing close cooperation between both parties—an "open door" for exchange of ideas. The Janitrol Select Dealer Program makes these things possible, and gives you extra benefits besides. Business development counsel, training schools, prizes, vacations, to mention a few. Right now's the time to qualify!

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## Idea Exchange for Dealers, Contractors

# Civic Spirit Builds Dealer's Business

... improving his public relations and his managerial ability

ENERGETIC PARTICIPATION in civic activities by heating-cooling dealers pays off in many ways — in the satisfaction of having contributed to a neighbor's welfare, in the direct benefit which he realizes for his services, and in the sales leads that come to him through his participation. These advantages are acknowledged by Jack Brooks, Sun Ray Heating Co., Chicago heating-cooling dealer whose business area encompasses many of the city's suburbs. Mr. Brooks is chief of the Flossmoor Fire Department, a volunteer organization which has two pumper companies and 30 members.

### Progress Tied to Community Development

Many of the business values of active civic participation are difficult to measure, but the welfare of a firm is closely related to the achievements of a community. Prosperous communities create business, and the dealer who is part of the community government finds it easy to stay informed on what people are planning. The prestige of being one of the community's leaders also helps in gaining both personal and business acceptance from those living in the area.

### Reputation Helps Land Distant Job

Emphasizing this point is a recent job undertaken by Mr. Brooks' company. A resident of Flossmoor who was planning to build a winter home in Florida asked the Sun Ray Heating Co. to install the year 'round system. The system was designed from floor plans and every part was fabricated at the shop, then placed in a truck along with the equipment needed and driven to the Florida home site for installation by Mr. Brooks and an assistant. (The journey to Florida was extended to become a combination business and vacation trip.) Such confidence on the part of a previous customer is not accidental; it comes from proof of the dealer's ability to do a good



FIRE CHIEF-DEALER Jack Brooks takes time out from work to fulfill important civic function on village fire department

job professionally and of his personal integrity which is proven by his interest in the welfare of his neighbors.

There are other advantages of civic activity participation; one is the training received in operations similar to the dealer's own. All this contributes to the managerial ability of the dealer. Good ideas come from other business fields and their adaptation to his own business is largely a matter of incorporating them into the physical structure of his company's operation.

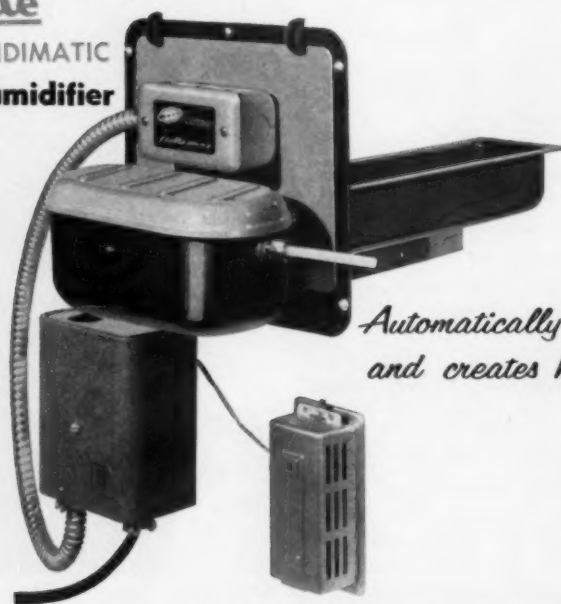
Good public relations is an integral part of every progressive business and must be worked at constantly to maintain acceptance. Interest in civic problems constitutes the best means of obtaining public acceptance.

→

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**for YOU from**

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**Skuttle**  
MODEL 400 HUMIDIMATIC  
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*Controlled* **HUMIDITY**

The difficult problem of maintaining the proper amount of humidity in a large home is solved with Skuttle's new electric humidifier. Designed for warm air heating systems, Model 400 Humidimatic is capable of vaporizing 27 quarts of water in 24 hours!

When the humidistat calls for more humidity, Model 400 automatically creates and controls the desired degree of humidification. Vapor is produced independent of heat from the plenum through the use of a 650 watt heat element in the water pan, which is connected to a relay transformer. Evaporation of the water takes place in less than a minute! Vapor is circulated by means of the blower on the furnace.

Model 400 Humidimatic is equipped for automatic water feed. A valve controlled by a glass, leakproof float keeps water in the humidifier at all times. No evaporation plates are necessary. For plenum or trunkline installations.



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HUMIDEX TABLETS  
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Placed in the float tank, Skuttle Humidex Tablets will protect any humidifier from the ravages of rust and corrosion. The destructive nature of lime, present in domestic water supplies, is prevented from adhering to vital surfaces. Scale is reduced to a sludge that is easily rinsed, prolonging the life of the humidifier.

By using Skuttle Humidex Tablets you eliminate costly service calls. All vital operating parts are kept free from clogging, guaranteeing better operation. Cleaning time is reduced to minutes without injury to the humidifier.

Economical for the user, there's extra profit for you. Include a package of Skuttle Humidex with your next humidifier installation. Each carton contains 12 tablets — enough for the entire heating season. Make Skuttle Humidex Tablets part of your annual service cleaning job!

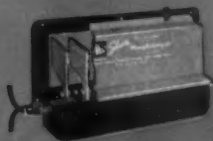
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**MODEL 600**

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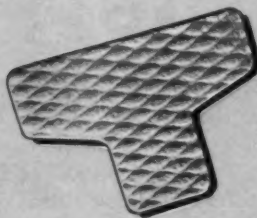
**MODEL 450**

Hangs on the side of the heater — evaporating plates reach into the air stream. Useful in counterflow, highboy, floor furnaces and space heaters, where space doesn't permit the use of Series 600.



**MODEL 760**

This increasingly popular duct type installation does an exceptional job of humidification. Note how the unit is installed on the bottom outside of the trunkline, leaving only the plates entirely exposed to give maximum evaporation without any obstruction. Airflow scrubs both sides and full length of each Vapoglas Plate.



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OAKVILLE, ONT.

# Tenant's Right to Install Room Unit Defended

**Eastern court holds that installation of room cooling unit within tenant's premises does not constitute violation of substantial obligation of tenancy**

A TENANT in an eastern city apartment installed a room cooling unit without the permission of his landlord. He attached a standard half ton room unit by brackets to the window frame on the inside. The unit rested on the window sill and extended outside about five in. beyond the brick wall of the building.

The landlord brought action for the eviction of the tenant. Under the laws of the state it is provided, "So long as the tenant continues to pay the rent to which the landlord is entitled no tenant shall be removed from any housing accommodation except the tenant is violating a substantial obligation of his tenancy." The landlord maintained that the installation of this air conditioning unit was a violation of a "substantial obligation" of the tenancy.

### No Grounds, Court Held

The court, however, held that there were no grounds here for evicting this tenant. The court said:

"An air conditioning unit which is not affixed to the outside of a building, having its physical origin within an apartment, and which protrudes only some insignificant distance beyond the window, the window frame, sill or casing, is within what might normally be considered the boundaries of the tenant's premises. The maintenance of such a unit is incidental to the tenant's enjoyment of his apartment and does not interfere or 'squat' upon the landlord's property.

"Since the unit here protrudes about 6 in. from the window frame it is well within the outermost end of the building ledge which is immediately beneath such window.

Such use does not require the landlord's consent.

### Not Deemed Substantial

"There is yet another reason which would justify this result. The statute sought to be invoked provides that the tenant, paying his rent, may not be evicted except upon grounds expressly specified therein. One of such grounds is for a violation of an obligation of his tenancy, only if that violation is a substantial one. Even if we are to assume that the appliance in question did constitute a technical encroachment upon the landlord's property, and therefore a violation by the tenant of his obligation of tenancy, nevertheless it could not in any sense be deemed a substantial violation."

In so ruling the court followed a decision rendered a few years before in a similar proceedings in which a tenant had installed an air conditioning unit and television antenna without permission of his landlord. In its decision of that case, denying the landlord the right to a repossession of the premises, the court had said:

"The court finds from all credible evidence that the tenant's installation of the television antenna and the air conditioning unit were without the landlord's permission and therefore, technically, constituted a violation of the lease. The violation, in the court's opinion, however, is not so substantial as to warrant the tenant's eviction from his housing accommodations."

Further authority for the decision of the court in this instance was in the interpretation of the phrase "substantial obligation" in a decision by the highest appellate court of that

state in a similar proceedings. There a landlord had claimed a violation of a lease when a tenant permitted relatives to live with him in his apartment contrary to a provision that it should be occupied only by himself and his immediate family. The court said:

### Must Consider Context

"The statute's relevant portions provide only that no proceeding to evict shall be brought by the landlord unless the tenant is violating a substantial obligation of his tenancy. Substantial is a word of general reference which takes on color and precision from its total context. Having little if any meaning when considered in abstract or in vacuum, it must be defined with reference to the peculiar legal and factual setting in which it occurs.

"Although there are certain instances where application of such a term poses questions of statutory construction — a matter for the courts — that is not true here. There is no necessity for the courts to formulate, case by case, a complete exclusive definition of what constitutes violating a 'substantial obligation' of the tenancy.

"The landlord established no significant departure from the obligation of the tenancy nor any loss or damage to itself. In short, the asserted violation is of a purely technical nature causing the landlord no actual loss and affording the occupant no profit nor commercial advantage."

[Note: While this discussion applies to actual cases, it should be remembered that legal rules vary in different states.]



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Your Moncrief Wholesaler offers better service with a more complete line of Heating and Cooling Units, plus Moncrief Surefit Pipe and Fittings. Call him, today!

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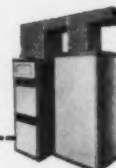
## WATER COOLED UNITS



The excellent Moncrief 2, 3 or 5 Ton Water Cooled Refrigeration Circuit is charged with Freon and sealed at the factory...



This complete Cooling Circuit is installed within the cabinet of Combination Year 'Round Air Conditioner...



Or is housed in its own cabinet for installation with a forced air furnace, as a 3 or 5 Ton Water Cooled Add-on Unit.

## AIR COOLED UNITS

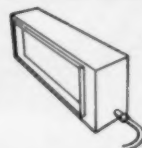
Shown at left, is the rugged Moncrief Air Cooled Condenser-Compressor Unit, which is as outstanding for top performance as it is flexible for installation. Available with 2, 3 or 5 Tons of cooling capacity, this unit is designed and constructed to be installed more readily, either outdoors or indoors. And this same Air Cooled Unit is adaptable for use with any one of the versatile Moncrief Cooling Coils, shown below.



The Furnace-Type Cooling Coil, which is installed inside the cabinet of the Moncrief Year 'Round Air Conditioner.



The V-type Cooling Coil, which is installed atop the air discharge opening of an Upflow-type furnace.



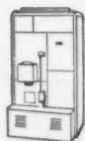
The Duct-type Cooling Coil, which is installed in the air discharge trunk line of an Horizontal or Counterflow Furnace.



Gas or Oil Fired 2 or 3 Ton Moncrief Year 'Round Air Conditioning Unit



3 Ton Moncrief Year 'Round Air Conditioning Unit is either Gas or Oil Fired



Counterflow Gas or Oil Fired, 2 or 3 Ton Moncrief Year 'Round Air Conditioning Unit



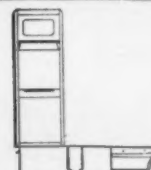
V-type Moncrief Cooling Coil installed with Winter Air Conditioning Furnace



V-type Moncrief Cooling Coil installed with Basement Type Winter Air Conditioner



Duct-type Moncrief Cooling Coil installed with Horizontal Furnace



Duct-type Moncrief Cooling Coil installed with Counterflow Winter Air Conditioner

**THE HENRY FURNACE COMPANY Medina, Ohio**

HEATING AND AIR CONDITIONING UNITS

**MONCRIEF**

FURNACE PIPE AND FITTINGS

# The new A 850 BASO® SWITCH



The Baso No. A 850 switch-type automatic pilot is a new design of the reliable No. 850 for low and line voltage circuits and is thermocouple operated like its predecessor.

#### This new design offers:

- B** New straight line reset mechanism.
- B** New indicator button, bright red, to show when switch is ON or OFF.
- B** New cover, painted a soft gray to harmonize with appliance color schemes.

For more about this new switch, *Write*

## BASO INC.

(Formerly Milwaukee Gas Specialty Company)

MILWAUKEE 1, WISCONSIN  
Dept. AA-3

Another  
**WILLIAMSON**  
**FIRST!**

For Heating  
and Cooling

*Seal-Tite\**

Whatever system you install . . . the modern cooling system of today where leakage is a decisive factor . . . or the more advanced systems of the future with their much higher velocity requirements . . . Williamson SEAL-TITE is the *only* system that will meet your requirements.

See your local Williamson source for the complete line of these revolutionary fittings.

THE WILLIAMSON CO. 3310K5 Madison Road Cincinnati 9, Ohio

Send me further information on:

- ☐ WILLIAMSON Seal-Tite Duct, Pipe and fittings  
☐ WILLIAMSON Gas, Oil & Coal Furnaces ☐ WILLIAMSON Air Refrigeration Cooling Units

Name \_\_\_\_\_

Firm \_\_\_\_\_

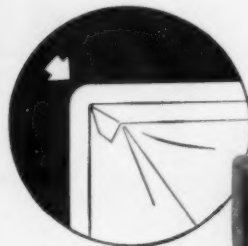
Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

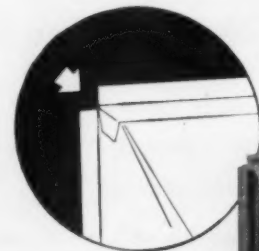
*Duct, pipe and fittings of a completely different design than is available from any other manufacturer!*

*What is Seal-Tite\*?*

Here is just one example showing the unique design difference between SEAL-TITE and a conventional square-cornered fitting . . .



Exclusive  
SEAL-TITE\*  
Top Take-Off



Obsolete  
Air-Leaking  
Top Take-Off



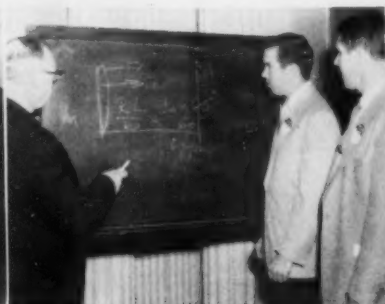
\*Trademark, Pat. Pending



# WHAT THE ASSOCIATIONS ARE DOING



DISCUSSING problems common to the various states represented are (l to r) E. L. Scott, Boone L. Noblitt, Jack Halfacre



AIR DELIVERY problem is solved at blackboard by (l to r) Lorin G. Miller, who addressed meeting, H. B. Stroup, Jr., E. B. Travis



REVIEWING newly published state heating code are (l to r) H. E. Futch, Jr., J. H. Welch, J. B. Franklin, J. C. Busby

## Enthusiastic Turnout Greet Southeast Trade Exposition

**Crowd of 1000 attends to view new products, hear speakers  
give advice on making a better profit, doing a better job**

THE FIRST Southeast Trade Exposition held in Atlanta March 21-24 proved to be one of the liveliest regional meetings ever held. Representatives of four state associations — Georgia, Florida, Alabama and the Carolinas — participated in the technical sessions to bring out pertinent points of interest to all sections of the region. Visitors attending the meeting came from as far away as San Antonio, Tex.; Waterbury, Conn., and Chicago. The technical program was backed up by 112 exhibitors displaying every type of product used in the warm air heating, residential cooling, sheet metal fabricating and roofing fields.

In opening the meeting, L. D. Herndon, president, Sheet Metal, Roofing, Heating, Air Conditioning Contractors Association of Georgia, said that this meeting was the southeastern states' high-water mark of joint cooperation for the industries represented. He predicted that the exposition would mark the beginning of a new era in which these industries would grow larger and more efficient in serving their customers. He said they would be repaid for their efforts through larger profit margins for dealers and contractors who put to use the wealth of information presented.

The technical sessions consisted of panels of speakers, question and answer periods, individual speakers with messages directed to special segments of the industry,

live demonstrations on a stage in the exposition hall, and special showings of research films narrated by the people who conducted the research programs.

In a panel session on heating, cooling and sheet metal work, moderated by E. L. Scott, president, Carolinas Roofing and Sheet Metal Contractors Association, Lorin G. Miller, dean emeritus, Michigan State University, pointed out some of the problems involved in adding cooling equipment to existing central heating systems. Dean Miller specifically cautioned dealers to check the blower capacity against manufacturers' charts and tables to be sure that the additional resistance of a cooling coil placed in the air distribution system did not reduce the air flow to a point that temperature conditions in living areas failed to meet the customer's requirements. He suggested increasing the blower speed if blower characteristics were suitable; if not, he advised replacing the blower and motor with components that could overcome the added resistance and deliver the air volume required.

The installation of heating equipment to comply with the 1949 state code was described by John G. Mauldin, Atlanta heating-cooling dealer and chairman, State Board for Warm Air Heating. Mr. Mauldin described the new issue of the board's code as "a manual that will serve

*(Continued on page 96)*



Here's a Brand New Plan to **REDUCE YOUR INVENTORY**

## NEW *Lima* Flexi-Trol

### Air Conditioning Registers and Grilles

Both Double and Single Deflection with Adjustable Bars

featuring  
**ATTACHABLE OPPOSED-LOUVER VALVES**

Take a Series 100  
Double or Single  
Deflection Grille



Add a Series 101  
Attachable  
Opposed-Louver Valve

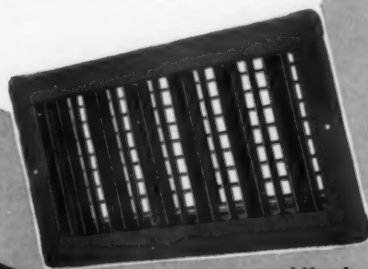


#### HERE'S HOW IT WORKS...

valves can be attached to grilles  
in seconds to make registers

In seconds you can convert a grille to a Flexi-Trol register by simply adding a valve. Lima's brand new plan saves you warehouse space, working capital and handling cost with Flexi-Trol Commercial Air Conditioning Grilles and Attachable Valves. Heavy gauge steel, resistance welded. Reinforced corners give added strength. Competitively priced. Grilles and Valves furnished in all sizes from 8 x 4 to 36 x 18.

Write for the new Lima Air Conditioning Catalog



and You have a  
Double or Single  
Deflection Register

*Lima*

**REGISTER CO. • LIMA, OHIO**

**1786 North Cable Road**

Sold exclusively through heating and air conditioning wholesalers and manufacturers



Dealers "in the know" recognize that this sign means:

## "Quality Heating is being installed here"

• NIAGARA builds quality "year 'round air conditioning" equipment which will provide years of dependable service. Because of this quality, NIAGARA also builds profits for heating dealers.

NIAGARA furnaces are gas or oil fired and available in many capacities and models to fit practically every home heating requirement. If you want the "cream of the crop" there is no finer furnace than the NIAGARA Series 50. For economy purposes the quality-built NIAGARA Series 70 furnace "fits the bill".

Get the facts. Find out how NIAGARA offers you the opportunity to sell quality heating and build profits for yourself.

For complete information, write direct or contact your NIAGARA distributor.

### **NIAGARA** FURNACE DIVISION

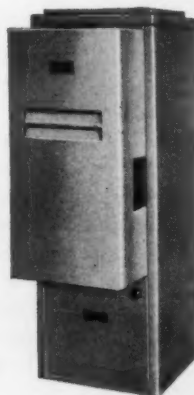
The Forest City Foundries Co.  
2500 West 27th St. — Cleveland 13, Ohio

#### NIAGARA Series 50



The finest gas-fired furnace line available for home heating. Equipped with the exclusive NIAGARA cast iron heat exchanger and 3-speed blower. Completely automatic. NIAGARA refrigerated unit can be combined to provide the best in "year 'round air conditioning."

#### NIAGARA Series 70



The low-cost quality furnace line with High Boy, Down Flow and Basement Models. Completely automatic, gas or oil fired, available in a wide range of sizes.





PERIODIC demonstrations from stage kept interest of registrants at a high level. Heating and cooling controls are described in this demonstration by Tom Lee



OPERATION Home Improvement is explained by John R. Doscher (standing). Also shown are (l to r) C. W. Bryan, Jr., J. E. Wells, J. L. Liner, J. L. Widener

as a guide to making safe installations that will perform to give the public good heating systems." He also pointed out that the rapid growth of the heating-cooling industry will continue to require more trained men to make installations, and the state code will require that every system comply with the minimum standards of the industry. Thus, newly trained men will be prevented from making any installation that would not meet the industry's minimum requirements.

## Price Squeeze Discussed

Also on this panel was Clyde M. Barnes, editor, American Artisan, who outlined what is being done in other parts of the country to help the dealer beat the price squeeze. He described the merchandising program known as WHAM, certified heating, the slogan "a register under every window," the test city dealer program, codes and licensing, Operation Home Improvement, and how a dealer can work with builders. Each of the subjects was tied to a dealer's operation. Mr. Barnes explained how the programs could aid in developing better prospects who are willing to pay a dealer a fair profit for applying the know-how that provides the proper comfort level.

(Continued on page 98)

## What Exhibitors Said

A cross section of exhibitors queried had this to say:

● "The reception accorded the exhibitors by dealers more than exceeded my expectations. The opportunity to show our products to architects and consulting engineers will help them to write specifications that will make it easier for the dealer-contractor to supply the kind of equipment they desire." — *Tommy Thompson, The Thompson Co., heating and cooling wholesaler.*

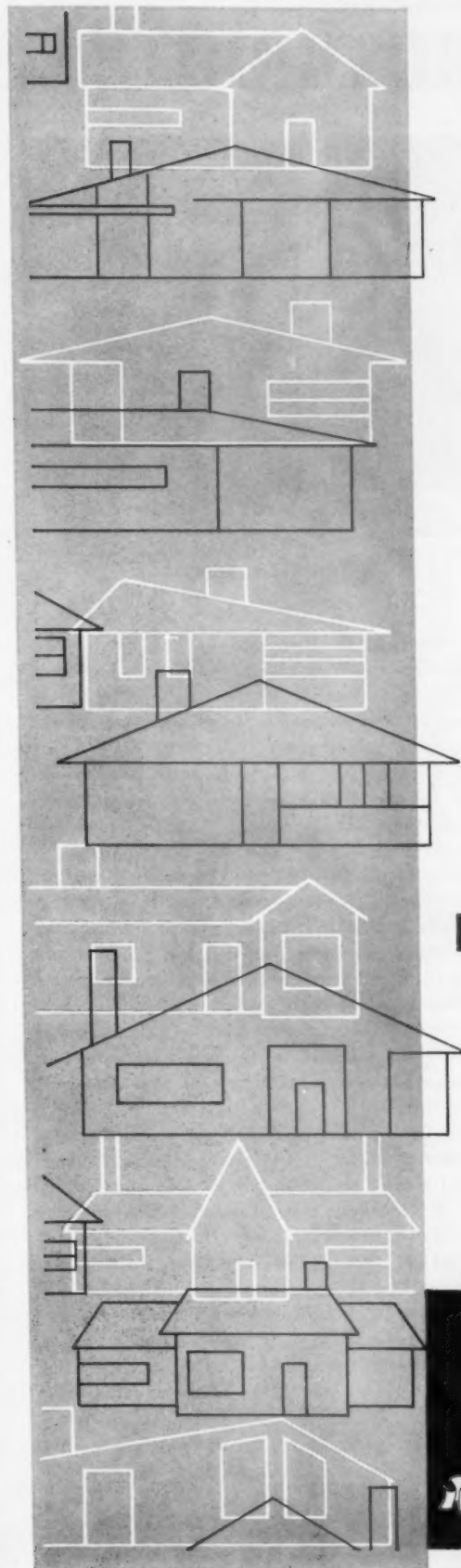
● "The number of dealers and contractors attending this exposition far exceeded the number we expected to turn out for a first venture of this type. Our booth gave us the opportunity to see many of our customers and to renew acquaintance with long time business friends." — *E. L. Murphy, Conklin Tin Plate and Metal Co., sheet metal products distributor.*

● "This convention and exposition gave us the opportunity to introduce our new model sheet metal shop table. Through our demonstrations we were able to show prospects how to use the equipment and it gave us the chance to show old customers new ways to use the equipment they now have." — *Lou Ranch, Engel Sheet Metal Equipment, Inc., sheet metal tool manufacturer's representative.*

● "The interest in our new product was gratifying. The number who turned out to see our display makes me feel that the show was of benefit to our southeastern district representative and will make it easier for our distributors covering this territory." — *M. F. Hauserman, Jr., Gustin-Bacon Mfg. Co., insulation manufacturer.*

● "The mechanization of our industry is taking place so rapidly that it's difficult to keep all roofing contractors informed in all of the latest techniques. This exposition helped to tell our story to many who had not heard it before. Every roofing contractor in the southeastern trading area who was unable to attend this year's show should make every effort to be at the next one." — *Julien P. Benjamin, Jr., Julien P. Benjamin, roofing equipment manufacturer's representative.*





# In one city, in 1956, A Borg-Warner dealer installed **740** central domestic cooling systems

Everything about the Borg-Warner Airline central air conditioning system is big . . . backed by big thinking . . . big in scope . . . big planning . . . a big name . . . it all spells bigger dealer profits. Tap this growing market with Borg-Warner Airline's complete package plan. Here's what our largest dealer said about central air conditioning —

*"Yes, the field is immense. I'm convinced that a tremendous opportunity exists . . . wherever there's central heating. All it takes is some hard work with one good line — Borg-Warner. That's it . . . good men specializing on the installation of Borg-Warner units will outsell ordinary dealers all the way."*



And his enthusiasm is backed by 740 installations in 1956.

## Borg-Warner Airline gives you . . .

- A Complete Quality Air Conditioning Line
- A Simple, Foolproof Estimating Formula That Gives the Exact Units Needed And the Exact Price in 15 Minutes Or Less
- Selling Assistance At Every Level
- Easier Coordinated Installation
- A Realistic . . . Substantial Profit
- A Name That Has Full Consumer Acceptance . . .



*A Complete Air Conditioned System  
in One Package.*



Borg-Warner Corporation, Kalamazoo, Michigan

I am interested in the Airline Plan.

Name .....

Company Name .....

Address .....

Date Airline Representative Should Call .....

## WITH THE ASSOCIATIONS

(Continued from page 96)



FLORIDA contingent extends greetings to Joseph D. Wilder (right) executive secretary, SMACNA, which will hold its 1958 convention in Miami Beach. Shown are (l to r) Jack Strong, John A. Diaz, Miss Mildred Shepard, Mrs. Strong, Miss Louise Diaz, and Mrs. Diaz



AUTOGRAPHED copy of state heating code is given to L. D. Herndon (right) by J. G. Mauldin

Continuing the subject of beating the price squeeze, Mr. Barnes explained several mimeographed sheets he distributed. One of these sheets listed 15 questions which quickly reviewed good management practices. If a dealer-contractor could not answer yes to each of the questions, Mr. Barnes suggested that the dealer examine his operations to determine the cause. The second sheet distributed was a tabulation of the man hours required to perform most of the operations encountered when doing modernization work in old residences. It was suggested that this sheet be used for estimating the cost of doing the job thus eliminating many of the pitfalls that tend to reduce a dealer's profit.

A fourth speaker on this panel was George O. Robinson, Atomic Energy Commission, who told about the potential of atomic energy in the heating-cooling field. Mr. Robinson indicated that he felt that coal, gas and oil fuels would reach their peak use in about 1970 and that after this date, atomic energy would supplement many of the uses of these fuels. He indicated that about 10 percent of the electrical power available in 1975 would be developed by atomic energy. He did not see electrical energy replacing combustionable fuels for heating residences at any time in the near future.

### Heating-Cooling Market Described

A rich market for residential heating and cooling equipment was described by C. W. Nessel, Minneapolis-Honeywell Regulator Co. Mr. Nessel used color film to dramatize the value of zoned heating and cooling systems. He pointed out the function of equipment when a minimum number of controls was used and explained how these controls were responsive to conditions over which they have no control. He listed sun effect and heat creating devices such as cooking or laundry appliances,

television sets, etc. He then demonstrated the function of a system controlled by several thermostats located at strategic points to increase air flow to areas requiring conditioned air and restricting air delivery to areas not requiring the full volume of air.

The importance of the nationwide program to encourage home owners to modernize their homes and ways in which heating-cooling dealers and roofing contractors could tie their services in with the program was explained by John R. Doscher, former executive director, Operation Home Improvement. Mr. Doscher said that approximately \$18 billion would be spent during 1957 to remodel America's homes, but that \$25 billion should be spent if outmoded homes were to be modernized faster than the rate at which older houses are becoming obsolete. The heating-cooling dealer can obtain his share of this market if he will join in the local level promotion plan being conducted by all facets of the residential building industry.

A short course in sales principles was conducted by a panel consisting of J. L. Widener, president, Reliable Roofers and Home Comfort Co., moderator, and Charles W. Bryan, Jr., manager, Georgia Roofing Supply; John L. Liner, sales manager, Modern Roofing and Metal Works; and J. E. Wells, owner, Southern Roofing and Insulating Co. Mr. Bryan pointed out that remodeling work requires the highest type of workmanship and the best materials available to satisfactorily complete a job that will convince the customer that he has purchased the kind of job he needs. This calls for careful estimating, he said, to be able to quote a price that will provide the percent of profit the contractor or dealer deserves. This price is never the lowest offered and must be sold to the prospect as worth the additional cost involved.

Locating prospects and methods of closing the sales

(Continued on page 102)

# DISTRIBUTORS - WHOLESALERS

*Don't forget...*

A MINIMUM INVESTMENT  
OF MONEY AND SPACE  
PUTS YOU IN BUSINESS WITH  
**CHAR-GALE**



## HERE'S HOW!

YOU INVEST...

**\$4000**



YOU GET...



1 TRUCK LOAD

YOU SELL...



**40 JOBS**

Just \$4,000 and 300 square feet of warehouse space are enough to start a profitable increase in your business with the Char-Gale air distribution system. Immediately, with no big commitment on your part, you're in a position to offer your dealers the *finest* complete, simplified air distribution system on the market, for heating or cooling.

A Char-Gale truck will bring *all* the elements of THE Char-Gale "Gale-Aire" comfort air distribution system *direct to your door*, in *one* convenient delivery. You don't have to be concerned about matching units from different sources, or hoping to coordinate a series of deliveries, because *it's all there*, in ONE CONVENIENT LOAD. Even after Char-Gale becomes a big part of your business, you can keep inventories down, because Char-Gale trucks travel anywhere in the country in a hurry. And you get truckload discounts on *any combination* of Char-Gale equipment.

All the material for 40 jobs, heating or cooling, is brought to you in your first Char-Gale truckload. This includes plenum, fittings, duct and registers. Everything is designed and manufactured for simple installation and efficient operation. And it comes to you completely packaged, for easy storage and protection against damage.



**FREE**

**SEND FOR THIS NEW  
ENGINEERING MANUAL**

Now, in *one convenient manual*, all the information necessary for figuring heating and cooling jobs! The answer to a long-felt need, this new manual will be an invaluable tool for distributors, wholesalers, dealers, and architects alike. Write today, on your letterhead, for your free copy.

**Act Now, to Increase Your Business  
and Your Profits, with Char-Gale!**

As you can see, it's not necessary to tie up your capital in large inventories of duct, fittings and registers. By stocking the simplified "Gale-Aire" system, you and your dealers get a complete air distribution line for either heating or cooling, that's easy to store, sell and install.

*For further information, write us, today!*

# Char-Gale

**MANUFACTURING COMPANY**  
ANOKA, MINNESOTA

# NEW from KEENEY!

## Keeney

- Small, compact in size
- Foolproof water level control
- Built-in heating element
- Entire unit cast aluminum, can't rust
- Positive vaporization into air stream
- Humidity easily controlled
- No evaporation plates

**MODEL 250** — wired to operate when blower is ON.

**MODEL 251** — wired with electric plug for continuous operation.



©Copyright pending  
Patent pending

## Follow the leader . .



## An instant-acting, foolproof ELECTRIC HUMIDIFIER

# Climatizer<sup>®</sup>

**You can install it in only  
14 minutes!**

### **When you sell the KEENEY Climatizer**

... you can be very sure you are offering your customers an electric humidifier that will give them top operating, trouble-free performance. An exclusive built-in heating element produces a vapor which rises directly into the air stream. Unit can be furnished (1) wired to operate when blower is ON, or (2) wired with electric plug for continuous operation. A foolproof float action perfectly controls the amount of water automatically fed through a self-cleaning valve. Humidity desired is controlled by a knob on the face plate. No evaporation plates to replace!

### **When you install the KEENEY Climatizer**

... you can be very sure of a simplified job that will save you time and money. The unit is complete with wiring and tubing factory-installed. Package includes saddle valve, sheet metal screws and easy-to-follow instructions. You can complete the installation in 14 minutes!



Illustration above shows two important exclusive design features of the KEENEY Climatizer: (A) built-in heating element; (B) positive method of adjusting face plate assures level positioning of body.

**For detailed information, send for catalog—**

## **TODAY**

**THE KEENEY MANUFACTURING COMPANY**  
**Newington, Connecticut**

Send me complete information on the KEENEY Climatizer.

Name \_\_\_\_\_  
Company \_\_\_\_\_  
Street & No. \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

# **KEENEY**

## WITH THE ASSOCIATIONS

(Continued from page 98)

were described by John L. Liner, who suggested that the best prospects would be found in homes over five years old, owned by people between 30 and 45 years of age who have children between the ages of 6 and 12 years. The best prospects will come from the tradesmen's group who normally have already invested in television and other home appliances. He pointed out that a salesman who will display evidence of his company's reliability and who will encourage a prospect to talk about his job and plans for the future will uncover most of the sales points that will help make the closing session both easier and more satisfactory to all parties.

The selection of salesmen was discussed by J. E. Wells, who advised that applicants for sales positions be screened carefully by having them fill out complete application forms covering all essentials of the applicant's background. This information should be carefully checked before the final interview with the prospective employee. He also recommended that employers be patient with new salesmen and not expect them to reach peak efficiency before completing the first year.

In a roofing forum moderated by John A. Diaz, president, Roofing and Sheet Metal Contractors Association of Florida, the importance of proper flashing techniques was discussed. E. J. Finn, Chase Brass and Copper Co., described the places where flashing failures normally occur and installation procedures that would prevent or reduce these failures. Mr. Finn suggested copper materials be used at all exposed locations because contaminated atmospheric conditions often are responsible for failure of other materials that haven't the resistance offered by copper. He warned sheet metal men that care must be taken to allow for expansion and contraction and recommended that base flashing expansion joints be installed at not less than 24 ft intervals.

### Keys to Good Health Told

Another forum on the value of healthy employees was under the direction of Jack Halfacre, president, Roofing, Sheet Metal, Heating and Air Conditioning Contractors Association of Alabama. The panel consisted of two noted specialists on heart disease and cancer. This panel proposed that early attention to persisting symptoms would reduce employee lost time, making it possible to obtain better workmanship over longer periods.

Employer and skilled trade problems were also discussed by Joseph D. Wilder, executive secretary, Sheet Metal and Air Conditioning Contractors' National Association. Mr. Wilder expressed the opinion that the recent interim agreements between the Sheet Metal Workers International Association and the United Association of Journeymen & Apprentices of the Plumbing & Pipefitting Industry and between the Architectural & Ornamental Iron Workers Union and the International Association

of Asbestos Workers have all been steps taken to iron out the differences in opinion between the skilled trades that perform services connected with air conditioning work. He indicated that he felt these interim agreements had helped smooth out contractors' labor problems in some areas but had multiplied labor problems in other areas.

He mentioned as one example the condition in New York City where the progress of 40 buildings now under construction was being hampered by members of the International Association of Asbestos Workers because of their interpretation of the agreement. He said that due to the rapid growth of the air conditioning industry most of the trade unions that had skills that could be utilized in the installation of cooling systems wanted to be sure they were not going to be left out of any work assignments made. He also expressed the opinion that the 19 skilled trades now making up the Building and Construction Trades Council may be consolidated into five or six large unions. This would mean that various related skills would be brought under one management guided by a board made up of representatives from all of the craftsmen involved.

Demonstrations conducted on the stage located in the exposition area included a display of the components of a zone controlled residential heating system. The demonstration was conducted by Tom Lee, Minneapolis-Honeywell Regulator Co., who showed how to select the kind of equipment to use, how to install and adjust it. He was aided in this activity by a mockup of a system where plastic sections of the duct made it possible to note the response of installed equipment to various area requirements as signaled by thermostats located in the zone.

A special invitational showing of the exhibits was made for architects and consulting engineers. The number who accepted the invitation was gratifying to the exposition committee. The interest shown in the industry's products was most gratifying to the exhibitors who felt that the opportunity to discuss application features of individual products would help in having specifications made that would leave the final selection of equipment in the hands of the contractor.

Attendance figures exceeded the prediction of Boone L. Noblitt, executive secretary, SMERO HACCA, who indicated that the acceptance accorded the first South-eastern Trade Exposition warranted the consideration of repeating the exposition in either 1958 or 1959. "This," he said, "will depend upon the association's board of directors and trustees, but with an attendance of over 1000, including about 200 persons who manned the 65 booths, it appears that industry people of this region have cast their vote of approval for a second South-eastern Trade Exposition."

(More association news on page 108)

# NEW ROTALOCK<sup>\*</sup> VALVE

*Gives Tecumseh Air Conditioning Compressors Every Advantage For Flexible Factory or Field Installation*



## \* IT'S DETACHABLE

Rotalock leads the trend towards greater production flexibility of air conditioning systems. Production changes from (1) valve to tube, (2) tube to valve, and (3) different sizes of valves and tubes can be made without ordering new compressors.

## \* IT ROTATES A FULL 360°

Rotalock may be set at any angle to correspond with the direction of the tubing. Short or compound bends are eliminated.

## \* IT LOCKS IN ANY POSITION

Simply determine the correct angle for best installation into the system and lock Rotalock into position. The angle may be changed or adjusted as necessary.

**\* IMPROVED WORKING DIMENSIONS** This important consideration has been accomplished chiefly by relocating the gage port at right angles to the valve body. In this position it is more easily accessible and does not add to the overall valve dimension.

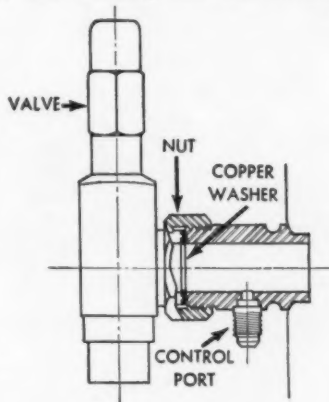
**SIMPLIFY ORDERING** One bill of materials covers the compressor to meet the customers requirements. Valve and tube connections or adapters are ordered separately as component parts. Three types of connections for either suction or discharge side are possible.

**CONTROL PRODUCTION** Rotalock permits customers to vary and adjust production as needed. The same compressors can be used for air or water cooled applications, and except for the 5 H.P. a single overload handles each. Saves time both in factory and field installation.

**REDUCE INVENTORY** The flexibility, simplicity and economy of Rotalock are advantages that mean less paper work, less handling and less inventory.

## HERE'S HOW ROTALOCK WORKS

The basic elements of the new Rotalock are illustrated at the right. Of major importance is the design of the seating arrangement between the spud and the valve or tube adapter. Note that the spud has a groove machined around the circumference of the face. A corresponding but smaller ridge is machined on the face of the valve or adapter. By inserting a soft copper washer between these faces, a tongue and groove seal is formed by the pressure of the nut. As pressure is applied, the washer is forced into the groove by the ridge on the valve, resulting in a positive seal around the full circumference of the face. Further, the seal will have equal pressure on all areas, and as more pressure is applied, the greater will be the sealing effect. This eliminates all possibility of leaks due to crimped gaskets, loose bolts, or imperfect thin gasket materials.



OVER 28,000,000 COMPRESSORS IN USE TODAY

The World's Largest Producer of  
Compressors for the Refrigeration Industry

**TECUMSEH PRODUCTS CO.**



Marion, Ohio  
Tecumseh, Michigan

EXPORT DEPT.—P. O. Box 2280, 24530 Michigan Ave., W. Dearborn, Michigan

Operation Oilburner Overhaul:

## TIME TO INSTALL A GF REFILL\* IN EVERY FILTER YOU SERVICE!

**\*Make Sure it's a Genuine Wool  
Felt GENERAL FILTERS CARTRIDGE**

● WHILE YOU ARE CLEANING AND ADJUSTING oil burner parts and controls for next heating season, make the job complete: *change the filter cartridge*. The increased heating efficiency and fuel savings your customers will enjoy will more than pay for a GF refill!

You provide *lasting* burner protection — and cleaner-burning fuel oil — with a WOOL FELT General Replacement Cartridge because it traps BOTH moisture and dirt particles including all lint. And there are NO sticky fibres to clog nozzles! Get the GF habit . . . earn up to \$1 for five minutes of your time!



### HERE'S A SERVICE TIP:

Pre-season service calls are the logical time to clean out soot-packed flues. Take along a can of CLEAN RIGHT Soot Remover. It works in 2-5 minutes! To complete the job, suggest a GENERAL HUMIDIFIER for real heating comfort and protection of walls, floors and furnishings.



"STEP  
BACK"  
DESIGN

1 MORE  
FILTERING  
AREA

FITS MOST  
MAKES

PATENTED  
LINT REMOVAL

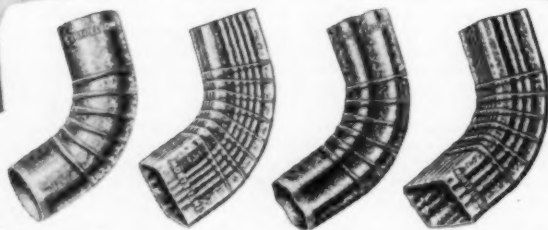
**ANY FILTER WORKS  
BETTER WITH A  
GF REFILL**

**GENERAL FILTERS, INC.** 47800 GRAND RIVER AVE.  
NOVI, MICHIGAN  
IN CANADA: Canadian General Filters, Ltd., 220 Broadview Ave., Scarborough, Ontario



## Conductor L. Bow says:

Let Cincinnati Elbows put extra profit in your next job. Easier to install because they're mechanically formed, on automatic machinery, to fit any standard size pipe. Longer-lasting because they're hot-dipped in zinc, *after* formation, to stop raw-edge rust. All sizes, angles, gauges—in copper, aluminum, stainless or galvanized steel. Ask your jobber.



**CINCINNATI ELBOW CO.**

4730 Madison Road • Cincinnati 27, Ohio



Get set to make  
more money...with

**Thatcher**

CUT HERE

**HERE'S FRONT LINE  
SALES SUPPORT!**

Clip this out... display it... hang it up  
NOW. Watch what happens when folks  
know you handle Thatcher—the name  
that's stood for quality continuously since  
1850.

**IF YOU'RE IN THE MARKET  
FOR A BETTER FURNACE**

**READ THIS**

GET A  
**Thatcher**

**IT'S GUARANTEED  
FOR 10 YEARS**



**AND... YOU CAN ADD SUMMER  
COOLING ANY TIME... WITH THIS  
THATCHER AIR CONDITIONER**

It's completely air-cooled... uses no water!  
Designed for easy installation with the heating  
unit.

You get winter warmth and summer air con-  
ditioning—all from one central system!



Get your **Thatcher** heating and cooling units here...  
at year-round comfort headquarters

4092

**Thatcher**

"Since 1850"

**FURNACE COMPANY, GARWOOD, NEW JERSEY**

Boilers

• Oil Burners

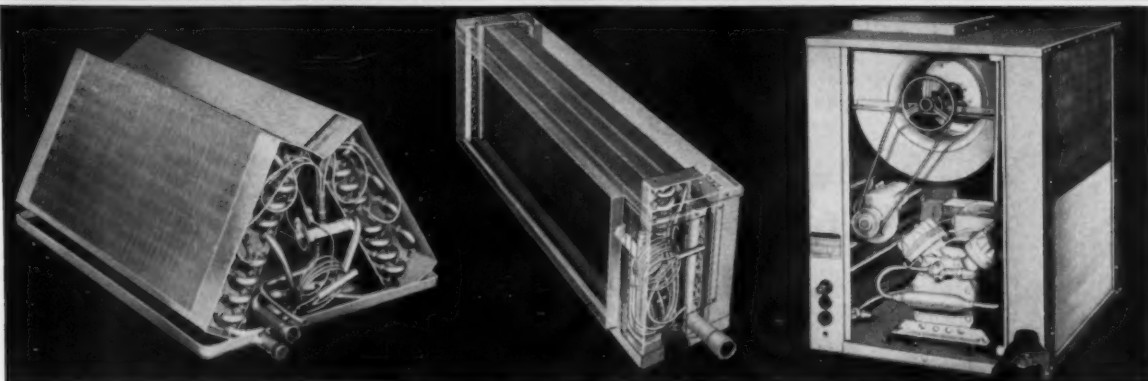
• Furnaces

• Air Conditioners

Long-established customer acceptance and satisfaction, plus  
competitive pricing... and active dealer support... make  
Thatcher your money-making line.

You are invited to qualify for a Thatcher dealership. Write  
today.

# CRANE



*"A" type cooling coil for any upflow application. Comes with aluminum drain pan. Special galvanized plenum is also available.*

*Flat-type cooling coil for horizontal air flow. Installs in duct of one-direction air-supply trunk.*

*Air-cooled condenser is shown in rugged weatherized cabinet suitable for outside installation in unprotected area.*

## NOW- a complete line of Crane Sunnyland "Add-on" air conditioners

How many folks in your area own forced-air furnaces? Almost every one of them (we'll bet) is a prospect for Sunnyland "Add-on" cooling.

Crane's complete line of Sunnyland "Add-on" air conditioners is designed for every type of home. Air-cooled condensing units are available in 2-, 3-, and 5-ton sizes. Cooling units fit basement, hi-boy, horizontal, and counterflow furnaces. Prices are competitive, installation fast and easy.

With hot weather coming, there'll be plenty

of talk about the comfort of central air conditioning. And with the Sunnyland "Add-on" line, you can get into the business in a big way.

Get all the details from your Crane Branch or Crane Wholesaler today. In plumbing, too, ask for Crane Quality.

*P. S. Check into Crane's complete line of Sunnyland year-'round air conditioners, too. 2-, 3-, and 5-ton sizes. Air- and water-cooled. For gas or oil.*

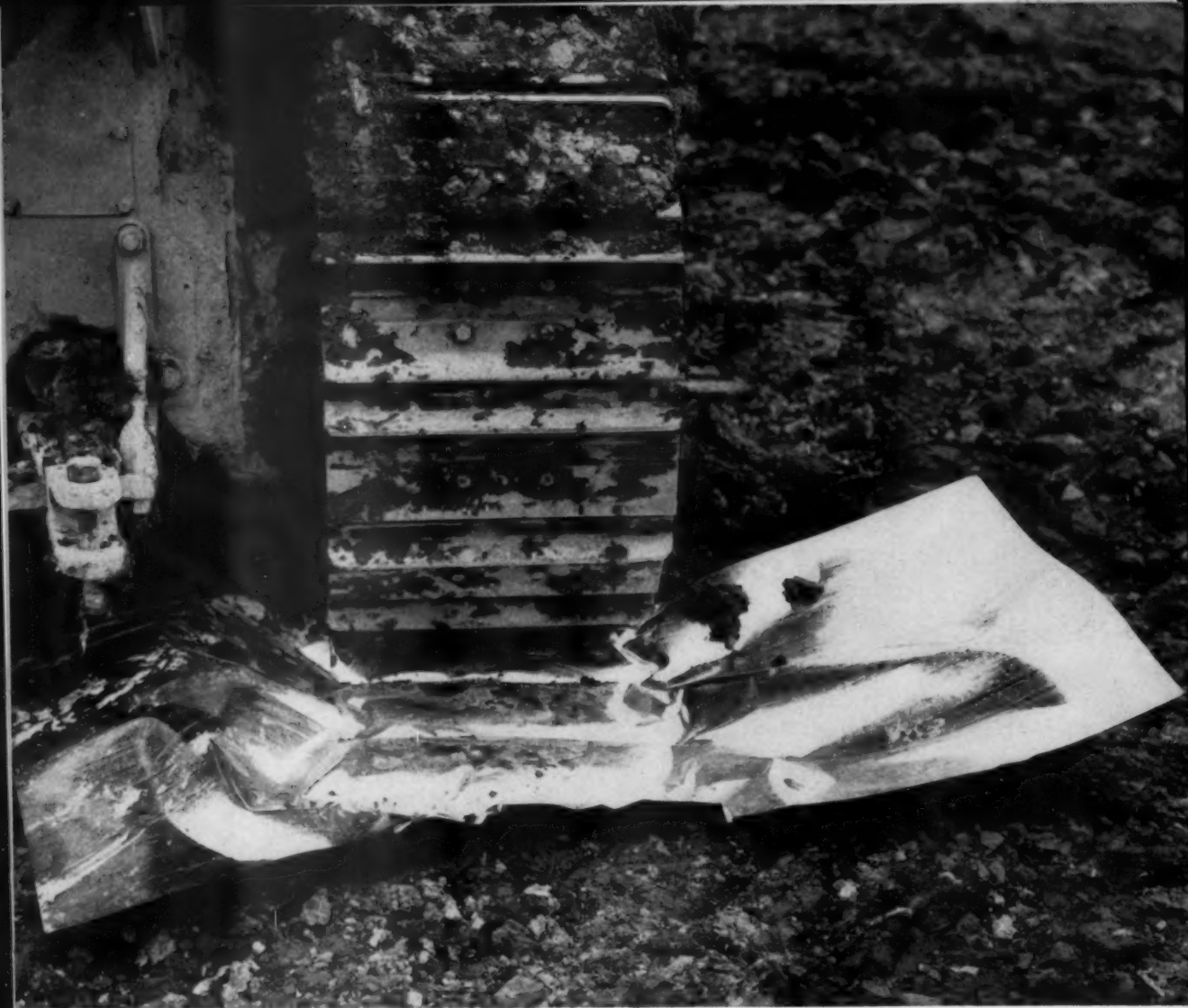
**CRANE CO.** 836 South Michigan Avenue, Chicago 5

VALVES • FITTINGS • PIPE • PLUMBING • KITCHENS • HEATING • AIR CONDITIONING

### 25 MILLION LIFE READERS WILL SEE "ADD-ON" STORY!

On May 6, 1957 Crane will tell millions of *Life* readers how they can air-condition with their furnace—the Sunnyland add-on way. Put this big, powerful advertisement story to work for you with a strong local tie-in. Get all these materials free from your Crane Branch or Crane Wholesaler.





## WE TORTURED THAT WEIRKOTE<sup>®</sup> TILL IT HURT US TO LOOK!

The heavy tractor's treads crunched into the Weirkote steel, rocked back and forth, gave Weirkote's tight zinc coating a wicked test.

It passed perfectly.

Weirkote shrugs off punishment like that—or far worse—in everyday production. Its continuous-process zinc coating goes through all the severe fabrication steps flawlessly—bending, deep drawing, crimping, twisting or lock seaming. There's no flaking or peeling

when Weirkote's on the job.

Weirkote is continuous-process zinc-coated steel at its best—highly resistant to corrosion, heat and noise. And it mounts fast because it's rigid. Takes a lot of kicking around on the building site. Why not check on Weirkote today.

### Free Weirkote Booklet!

*Send for all the facts on Weirkote.*

*Write Weirton Steel Company,  
Dept. J-5, Weirton, West Virginia.*



**WEIRTON STEEL  
COMPANY**

WEIRTON, WEST VIRGINIA

a division of



### *These Men Head West Coast Associations*



**Andrew P. Fischer**



**Donald M. Keefer**



**Robert N. Hall**

#### **West Coast Hosts Convention**

THE FIRST summer convention of the warm air heating and air conditioning industry ever to be held on the West Coast is scheduled for San Francisco, June 5-7. Convention headquarters will be the Fairmont Hotel. Dealers and industry representatives from all over the country are expected to attend the meeting, which has been billed as a combination of business and fun.

Three West Coast associations are cosponsoring the meeting with the National Warm Air Heating and Air Conditioning Association. They are the Warm Air Heating Institute of Northern California, the Institute of Heating and Air Conditioning Industries (southern California), and the Portland, Ore., Warm Air Heating and Air Conditioning Association.

Many of the speakers and panel members will be from West Coast cities. The panel on the mutual problems of builders and heating and air conditioning contractors will be moderated by R. R. Taylor, Fraser and Johnson Co., San Francisco. Builders on the panel will be I. C. Jordon, Los Angeles; A. F. Oddstad, Redwood City, Calif., and Duke Newby, Portland. Dealer-contractors will include: D. S. Will, Southland Heating and Air Conditioning Co., Inc., Long Beach; Harold Boothby, Boothby Sheet Metal, Sacramento, and Al Briggs, Portland Sales and Service, Iron Fireman Mfg. Co., Portland.

The panel on air conditioning will be moderated by E. A. Myers, Prentiss Corp., Los Angeles. Panel members include: S. F. Skafte, Utility Appliance Corp., Los Angeles; H. A. McIntosh, Controls Systems Div., General Controls Co., Glendale, Calif.; E. E. Carroll, Kleenair Furnace Co., Portland; Albert Freeman, Western Engineers, Inc., Portland; Jack Ward, Edward B. Ward

and Co., San Francisco, and L. A. O'Meara, mechanical engineer, Sacramento.

A panel on "What's Doing on the Pacific Coast?" will include: R. N. Hall, Southland Heating and Air Conditioning, Inc., Long Beach, who is president of the southern California group; D. M. Keefer, McPherson Furnace and Supply Co., Portland, who is president of the Portland association, and Dar Knowles, executive manager, of the northern California organization.

West Coast men presiding over convention sessions include: Merrill Rutledge, Martin Fuel Co., Seattle, who is president, Associated Sheet Metal Industries, Inc., and A. P. Fischer, A. P. Fischer, Inc., Modesto, Calif., who is president of the northern California association.

The convention starts on Wednesday, June 5, with the program scheduled to start at 1:30 in the afternoon to conveniently coincide with travel schedules. It ends at noon Friday, June 7, allowing conventioners a long weekend, either to get home or to enjoy themselves.

#### **Kansas City Contractors Council Formed**

REPRESENTATIVES of the various Kansas City mechanical, sheet metal, plumbing and electrical contractors associations met in March. As a result, the Mechanical Contractors Council was organized to coordinate the efforts of the member associations to represent, promote and advance their common interests. President of the new group is Robert E. Peterson, who is also president of the Kansas City Sheet Metal and Air Conditioning Contractors Association. The council will be directed by a board of governors consisting of the president and two representatives from each affiliated association.

(More association news on page 112)





*Shown above, over-size and actual size . . . the dustproof, trouble-free, never-fail mercury switch of the famous Honeywell Round.*

## *Ends 67% of your thermostat service calls because it's 100% dustproof!*

**Sad truth:** 67%\* of all thermostat service calls are caused by dust and dirt insulating the electrical contacts. You often make nighttime trips on these trouble calls . . . but you never make profit on them.

**Happy truth:** The mercury switch of the Honeywell Round is 100% dust and dirt proof, with electrical contacts completely sealed inside a glass tube. Why settle for anything less?

\*Source—leading Midwest utility survey.

### **The HONEYWELL ROUND**

*Keeps trouble away from your door.*



## Simple Arithmetic...

Type 302, Sheet Base Price **50.00** cents per lb.

Type 430, Sheet Base Price **- 39.25** cents per lb.

**Saving 10.75** cents per lb.  
**in Stainless SHEET Costs!**

## Now you can **SAVE \$215 per ton** **in base price alone!**

Many designers and fabricators who are currently using Type 302 stainless can, in numerous applications, specify Type 430 straight chromium stainless and take advantage of the 10¾ cents per pound difference in base price. Some of our customers are already saving more than \$215 per ton using our 430 MicroRold stainless sheet.

The steel industry estimates that 50% of all stainless sheet applications could satisfactorily employ Type 430, the least

expensive of all stainless grades, as an economical and practical material. When properly applied, Type 430 has all the desirable qualities of beauty, corrosion resistance, strength, long life and low maintenance that no other material, except stainless, can offer.

We are currently producing our MicroRold Type 430 sheets up to 48" wide in thicknesses .005" to .109" with 2B or 2D finishes; and in thicknesses .010" to .109" in No. 3, 4 and 7 finishes.

*Send for Your copy, "Care and Use of 430 MicroRold Stainless Steel"*

**Washington Steel Corporation**  
5-A WOODLAND AVENUE, WASHINGTON, PA.





"The preferred line for profits!"

# Vornado<sup>®</sup> SELF-CONTAINED CENTRAL AIR CONDITIONERS

Here are the reasons why Edgar Parrington, President of Parrington Engineering, Dallas, Texas, prefers Vornado: "I prefer Vornado Central Air Conditioners for two reasons: One — for profits; and two — for its easy installation. My crews can handle most installations and connect to existing duct work in a matter of three to four hours. Dor-

mer installations, crawl space, basement, roof, garage, or furred-down hallway are equally simple and fast. "As an air conditioner contractor, I appreciate the virtually trouble-free service you can expect from Vornado. Both of these factors: fast, easy installation, and dependable service — mean larger margin of profit for my operation."



ONLY  
SYSTEM  
OF  
ITS  
KIND



*proved*

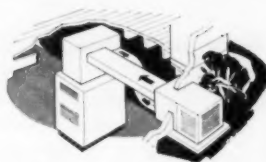
IN THOUSANDS OF HOMES!

Vornado installs quickly...easily...anywhere!

**COMPLETELY PACKAGED**...Everything in one compact package. Air-cooled operation eliminates extra plumbing... water connections...outside accessories.

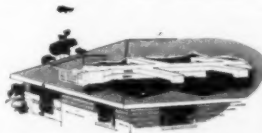
**TROUBLE-FREE PERFORMANCE**...powerful! Two hermetically sealed, heavy-duty compressors deliver unequalled capacity. One operates continuously...constantly controls humidity. Other cycles on and off, as needed, for economy's sake.

**FULLY GUARANTEED**...by the manufacturer! Factory warranty assures satisfactory service. Over 7 million satisfied Vornado users!



#### ADD-ON

Compact unit connects... quickly and easily... to existing warm-air furnace duct work.



#### SEPARATE SYSTEM

Prefabricated Vornado duct cuts installation time to minimum! Light...easy to handle. Sturdy...and highly efficient!

product of

The O. A. SUTTON CORPORATION, INC.  
World's leading full line manufacturer of comfort cooling appliances  
WICHITA, KANSAS

Distributed in Canada by: Alliance Motors, Schell Ave., Toronto 10.

send  
THIS  
COUPON  
TODAY

THE O. A. SUTTON CORP., INC.  
1812 W. SECOND ST.  
WICHITA, KANSAS

I want complete information on your new versatile, low-cost Vornado Central Air Conditioners. It is understood there is no obligation. AA-3/57

NAME

FIRM

POSITION

ADDRESS

CITY

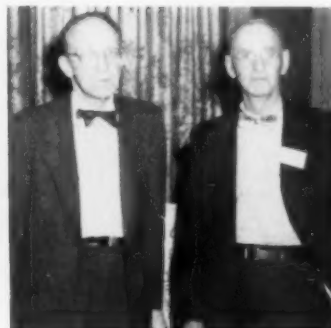
STATE



PROBLEMS of sizing cooling units are discussed by William Laut during panel discussion at the Michigan convention



REGISTER location was covered by Clarence Grandstaff. Seated are (from left) President C. L. Schartow, Ralph Gonzalez, and N. J. Biddle



CONVERSATION is halted for a picture of C. W. Nessell (left) and Henry Delnay



OLD FRIENDS MEET at Michigan convention. N. J. Biddle (left), association secretary, and Harry Gibson, Muskegon exchange greetings

## Must Create a Desire For Quality Systems

. . . C. W. Nessell tells dealers  
at 46th annual convention of the Michigan  
Heating and Sheet Metal Association

THE HEATING SYSTEM is the most important piece of mechanical equipment in a house, and yet people know less about it than any other, C. W. Nessell, Minneapolis-Honeywell Regulator Co., told members of the Michigan Heating and Sheet Metal Association at its 46th annual meeting in Saginaw, March 21-22.

Mr. Nessell told of his experience in touring a builder's model home. When he asked about the heating plant, the builder told him, "More than 20,000 people have gone through this house, and you're the first one who has asked anything about the heating system." Mr. Nessell pointed out that builders only put into a house the things that will make them sell, and as long as people don't ask about heating builders are going to cut corners there.

The industry must create a desire for quality heating systems, Mr. Nessell said. They must be sold to the home buyer before they can be sold to the home builder, he pointed out. He called upon manufacturers and wholesalers to do more in this area. However, he pointed out

that few manufacturers can afford expensive advertising campaigns, indicating that some cooperative industry effort is called for.

### Panel Discusses Cooling

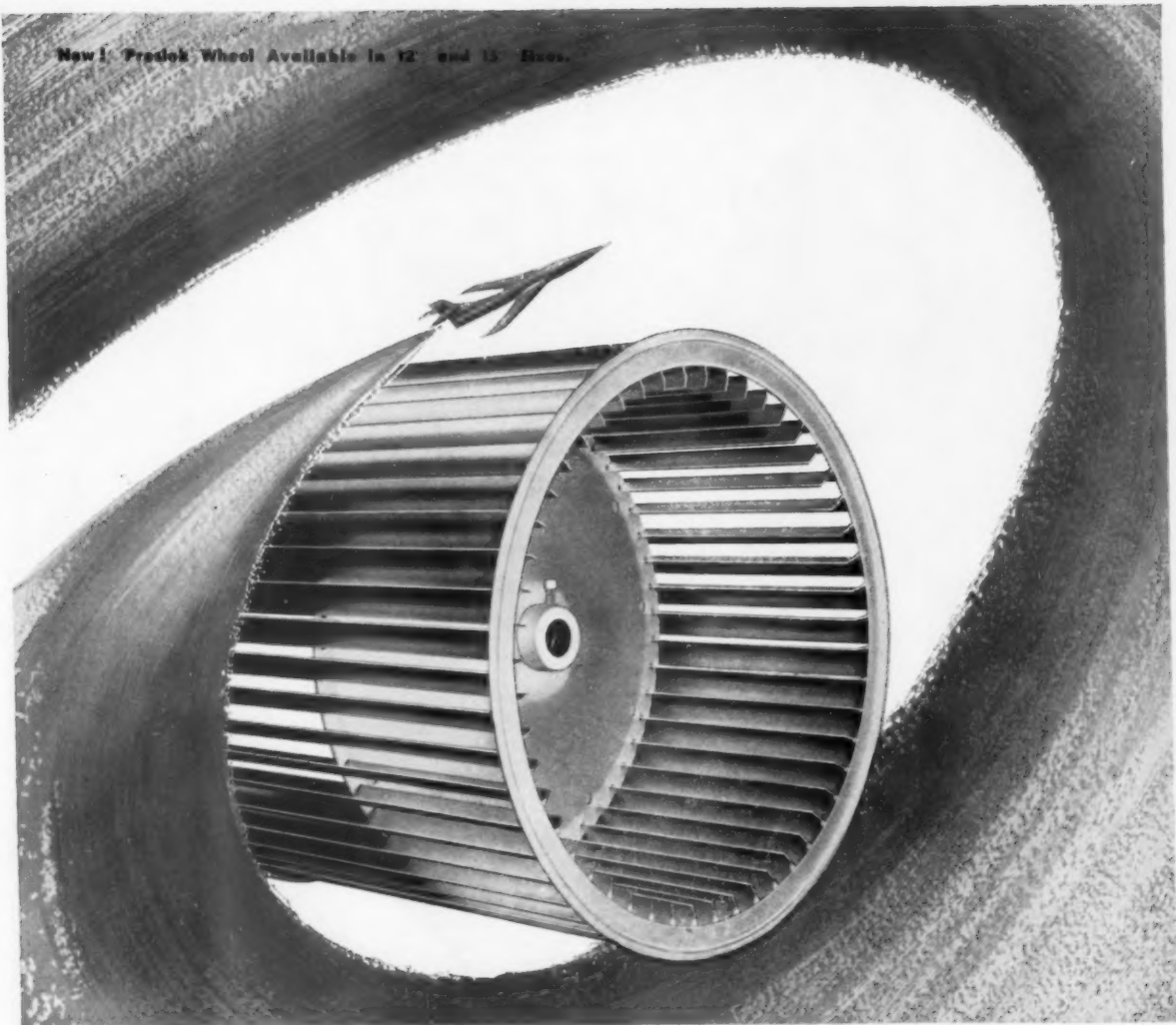
Another convention feature was a panel discussion on summer air conditioning which covered three topics: 1) low humidity vs low temperature, 2) high sidewall vs low wall registers, and 3) air cooled vs water cooled equipment.

William R. Laut, Saginaw Distributors, Inc., covered the first of these subjects. Mr. Laut noted the difficulty in selecting equipment of the proper size for cooling homes. For example, he said that many homes properly would require a four ton unit. In order to get such an odd size he suggested two smaller units or a multiple circuit unit. As an ultimate solution, Mr. Laut said he hoped that manufacturers would eventually supply units with

(Continued on page 117)



New! Preslok Wheel Available in 12" and 15" Sizes.



## GIVE YOURSELF A SPEED 'MARGIN OF SAFETY'

Specify Preslok® Wheel . . . Guarantees 50% More Operating Speed



Are your modern air conditioning requirements calling for greater speeds, higher statics? *Preslok is guaranteed to increase your operating speed maximums by at least 50%!*

With Preslok, the center disc grips the blade mechanically by an exclusive Lau locking method. Four disc fingers slip into the blade aperture and are pressed together in locking position. *Preslok eliminates ballooning at higher speeds . . . insures a quiet operation.*

One more advance for Lau engineering. One more answer to the needs of original equipment manufac-

turers, made possible by superior Lau engineering and production skills.

The Lau engineering skills are available to the entire air-moving industry . . . and specifically to your business *whenever you need them.*

Perhaps your organization is confronted with a difficult air-moving problem right now. If so, why don't you call in Lau, who have pioneered so many advances in more than 25 years of service. Write Dept. M, today.

### THE LAU BLOWER COMPANY 2007 Home Avenue, Dayton 7, Ohio



Azusa, California. In Canada: The Lau Blower Company of Canada, Ltd., Kitchener, Ontario.

**World's Largest Manufacturer of Air-Conditioning Blowers**

3-57



## NEW RHEEMGLAS FURNACE—trend-setter of a complete new heating line from Rheem

**NEW LONGER LIFE.** Now you can sell your customers the longest-lasting furnace of all! Only this new Rheem gives you Rheemglas—a very special glass lining that eliminates rust and corrosion, assuring customers added years of trouble-free operation. It's *unconditionally* guaranteed for 10 years!

**NEW VERSATILITY.** With a Rheemglas furnace it's now far easier to add on summer air conditioning—like revolutionary Rheemaire. For each of the new Rheem furnaces comes with an optional plenum and is specially engineered for cooling.

**NEW SMALLER SIZE.** An 80,000 BTU gas-fired Rheemglas takes less than 3 square feet of floor space. Cuts inventory, too. One simple return-air attachment converts a Rheemglas high-boy into a lowboy. Priced right. With all its big advantages, Rheemglas costs no more than comparable units.

And that's just a sample of what every new Rheem gas- and oil-fired furnace has to offer. They're all new—through and through—with new emphasis on trim styling. Contact your distributor for full details.

YOU CAN RELY ON



THE BIG NAME IN COMFORT PRODUCTS FOR THE HOME  
central air-conditioning systems, wet-heat boilers,  
water heaters, water softeners, plumbing fixtures

Home Products Division of Rheem Mfg. Co. / 7600 S. Kedzie Ave., Chicago 29, Illinois.



NEW Black & Decker  
No. 16 NIBBLER



NEW Black & Decker  
No. 16 SHEAR

## Two New B&D Tools speed up sheet metal jobs!

**Faster, lighter, easier handling,  
POWER-BUILT and packed with features**

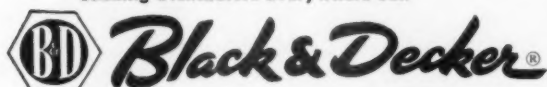
Whether you need the speed of shears or the more precise performance of nibblers—you'll find a lot to like in the new Black & Decker No. 16 Shear and No. 16 Nibbler.

By actual test, they're faster and longer-lived than competitive tools. Their lighter weight means easier handling. Their centrifugal fans give cooler running. Each has exclusive construction features to stand up under the shock of sheet metal cutting.

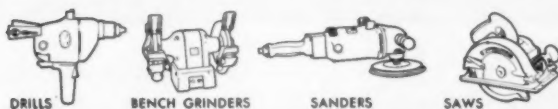
Try these new tools at your nearby Black & Decker distributor. There's a No. 12 Shear, too, for heavier work. For full details on new features, write to: THE BLACK & DECKER MFG. CO., Dept. 1605, Towson 4, Maryland. (In Canada: 80-86 Fleet Street, E., Toronto 2, Ontario.)



Leading Distributors Everywhere Sell



Portable Electric Tools—Power-Built to set the pace

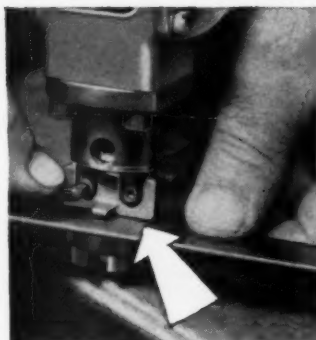


DRILLS

BENCH GRINDERS

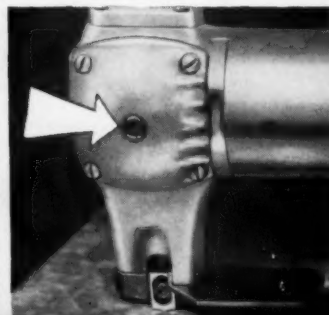
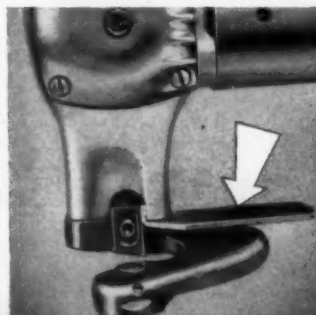
SANDERS

SAWS



UP TO 3 TIMES FASTER than competition, new B&D Nibbler has twice the life, 20-30% less weight, reversible punch. Adjustable stripper plate (left), smaller diameter (right) are extra features.

50% FASTER than competition, new B&D Shear has one-third less weight than closest competitor, lasts much longer. Deflector plate prevents curling of material. Adjusting screw allows quick positioning of blade.



## "top" installations needn't mean sky-high costs

Why bother your head trying to solve the problem of "the forgotten fan" when Utility has solved it for you — and profitably, too.

It's a fact that wind and the weather play havoc with roof blowers, causing breakdowns from exposure and lubrication neglect. But today Utility has the answer ready in a full series of Enclosed Drive Blowers designed to stand the outdoor gaff. All have motors and drive completely enclosed for positive protection against dirt, moisture and drastic temperature changes. Pre-greased, permanently sealed ball bearings prevent breakdowns due to hit-or-miss maintenance . . . mean year after year of faithful outdoor service.

This feat of common-sense engineering is just another example of Utility's attention to the important details that mean functional excellence in the product, low cost for the customer, a high margin of profit for you. So plan with Utility for maximum service — and profit — on every job!

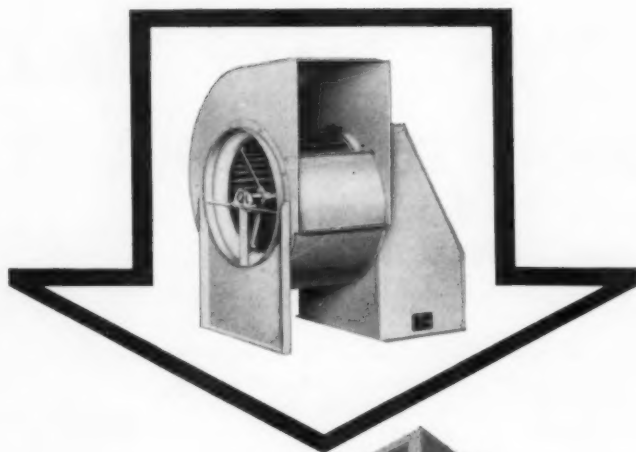
*A Division of Utility Appliance Corp.*

### **UTILITY FAN CORP.**

*911 East 59th Street, Los Angeles 1, California*



*Manufacturers of heavy and standard duty blowers for heating, air conditioning and ventilating installations. Producers of blowers and blower parts for original equipment manufacturers. Write for catalogue data.*





## WITH THE ASSOCIATIONS

(Continued from page 112)

capacity reduction features such as are now found in commercial equipment.

Clarence Grandstaff, C. A. Olsen Co., in discussing register location, said that a high sidewall supply is not satisfactory for heating unless the room is over a heated basement. The high sidewall location, however, is excellent for cooling, he said, and he cited cases where installations have featured a tandem system with both high and low outlets. He also covered the special problems of cooling second floor rooms.

In discussing air cooled vs water cooled equipment, Ralph Gonzales, Airtemp Division, Chrysler Corp., said that both have advantages under certain conditions. Water cooled equipment, he said, has a major advantage only where water costs are low and where water does not need to be recirculated. When recirculation is attempted, he noted, mineral deposits will build up in the system and reduce the efficiency. In some areas such equipment should be cleaned several times a year. Because of this, operating cost will be close to that of air cooled units. Of major influence on operating costs, he pointed out, is the manner in which homeowners use their equipment. He cited examples where homeowners left windows open or shut units off at various times of the day.

Other speakers included Everett R. Phelps, professor of physics and astronomy, Wayne University, who spoke on humidity, and Louis E. Barry, deputy administrator, Civil Defense Administration, who discussed the national civil defense program.

### OHI Convention Features Conferences

MANAGEMENT conferences will be featured at the 35th annual convention of the Oil-Heat Institute of America to be held in Boston, June 3-6. The convention will run concurrently with the Biennial Eastern Exposition of Oil Heat and Domestic Cooling, sponsored by the Oil-Heat Institute of New England, June 4-7.

"Our convention program is planned so everyone can attend management conferences in the morning and the exposition in the afternoon and evenings," said Fred W. Heaney, chairman of the convention committee.

On Monday, June 3, the annual meeting of OHI will be held as well as annual meetings of the various OHI divisions. Committee meetings will be held on both Monday and Tuesday, June 3-4.

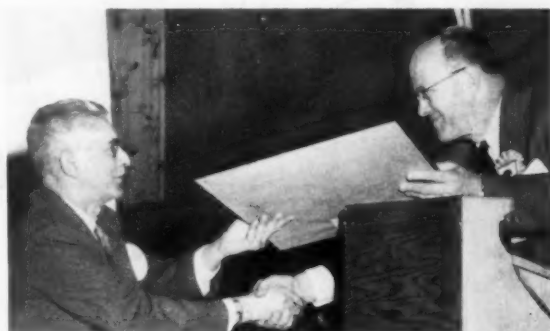
A brand new feature of the convention will be the technical division symposium on domestic oil heating and cooling. The symposium is scheduled for Tuesday morning. A series of papers will be presented which will be both technical and practical. R. P. Gilmartin, Gulf Oil Co., is chairman of the symposium and W. T. Knox, Esso Research and Engineering Co., is program chairman.

The program on Wednesday and Thursday mornings will feature the management conferences sponsored by OHI's distribution division. Eighty round table discussion topics have been selected for these sessions. The schedule will be arranged so that a dealer may attend the six discussions that most interest him. Each discussion will be led by a dealer who has a reputation for outstanding success in special phases of his operation. Everett Elliott and Pat Caputo are co-chairmen of the conference program.

### Canadian Bonded Heating Goes National

IN ACTION taken at the 14th annual convention of the National Warm Air Heating and Air Conditioning Association of Canada, the Canadian program of certified bonded heating was adopted on a national scale. The success of a test program in Toronto led to the decision to expand the program to all provinces.

D. M. W. Wilson, managing director of the Canadian



FIRST PRESIDENT of Canada's NWAHACA, Fred Rand (left), is presented honor certificate by last year's president Harry Bulloch

group, announced that the expansion of the certified bonded heating program would be started in the province of Ontario and be made available to other provinces at a later date.

In order for a dealer to qualify for the certified bonded heating program he must be a member in good standing of the Canadian NWAHACA. In addition, the company must be bonded by a designated bonding company. The bond costs \$20 per year. Under the program, all plans for a certified bonded heating installation must be checked and approved by the association's professional engineer. The fee for checking each set of plans is \$15. After the installation is completed it must be inspected and carry the association's seal of approval. A charge of \$15 is made for each inspection.

New officers elected at the convention include: M. M.

(Continued on page 120)



"SACHEM"



**PACER** now available in 75,000 to 225,000 btu. Designed to accommodate furnace-water heater combination closet often specified by large tract developers. Write for complete specifications.

# Sequoia

## GAS FURNACES

### CLOSETEER

28½" width and shallow depth make Closeteer a perfect model for single-floor homes requiring central location.



### REV-FLO

Available 75,000 to 187,000 btu. Same dimensions as Closeteer. Counter-flow. Idea in concrete slab floor homes. Wide choice of installation locations.



### BASEMENT MODEL

90,000 to 225,000 btu. Top inlet. Top discharge



### HORIZONTAL

17½" height on most models. Fits under floor joists without pit, suspends overhead, or on light attic platform. Ideal space-saver.



"SACHEM" This Indian word applies to the entire Sequoia tribe of forced air gas furnaces—every one a "leader." And no wonder!

Sequoia engineers continually lead in the product flexibility demanded by new ideas on installation locations. Look at the popular Pacer (above) installed by developers of large projects. With the Pacer, Sequoia also offers the Closeteer for shallow depth locations, Horizontal to save useful living space, Rev-flo for counter-flow perimeter heating and complete line of basement models. Put Sequoia gas furnaces in *your* tribe—join the happy heating ground of Sequoia dealers.

### SEQUOIA MANUFACTURING COMPANY

1090 BRITTAN AVENUE • SAN CARLOS, CALIFORNIA

Manufacturers of Upright, Reverse Flow, Horizontal and Basement Gas Furnaces and Air Conditioners

# "CLEAN LIVING" GIVES A CHEVY ENGINE LONGER LIFE!

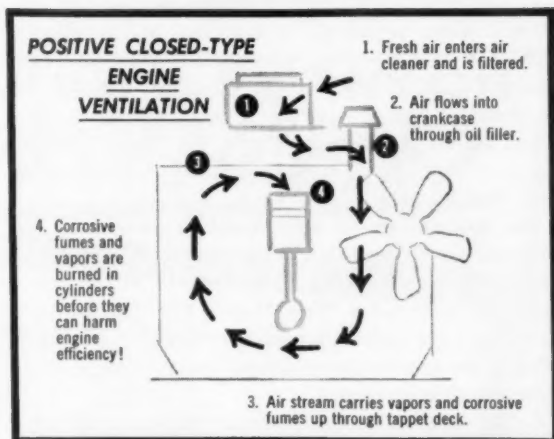
**... more evidence that Chevrolet Task-Force trucks are engineered better and built better for bigger savings!**

*This drawing shows, roughly, one of the ways in which Chevrolet truck engines minimize a major cause of wear—dirt! Now consider this additional evidence that Chevy heavy-duty V8's and 6's "live clean" and bring you fleet, dependable power that costs less to use!*

*Extra filters give extra-clean fuel—Only clean fuel reaches the engine—that's one reason you can depend on a Chevrolet truck! All fuel is filtered twice (once in the fuel tank and again in the carburetor) to keep dirt and water from hampering efficient operation. Chevrolet truck V8's provide a third filter, at the carburetor, for triple protection!*

*Oil stays clean longer, too—Chevrolet truck V8's and 261-cu.-in. 6's come equipped with modern high-capacity oil filters (V8 filters are of the Full-Flow type). These engines keep clean oil flowing to moving parts; parts wear less and last longer because of it!*

*Even the air is cleaner—Dust and foreign matter in the*



air an engine "breathes" can reduce engine life by years. Chevrolet minimizes this wear-producing factor by providing big oil-bath air cleaners as standard equipment on all truck engines.

These are sound under-the-hood reasons why a Chevrolet truck will *stay* on your job and *save* on your job. There are others, too, including short-stroke V8 design (shortest stroke of any truck V8's!) and 6-cylinder engine design that puts out more power than any other in the field. You'll learn about them all when you visit your Chevrolet dealer. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.



*Biggest sellers . . . because they're biggest savers!*

## CHEVROLET TASK • FORCE 57 TRUCKS

## WITH THE ASSOCIATIONS

(Continued from page 117)

(Mike) Miller, president, London, Ont., and E. Harvey McKinney, vice president, Toronto. The immediate past president is T. Harry Bulloch, Winnipeg. Members of the board of directors include: Lyle C. Whealy, J. Don Grant, Harry T. Williams, Frank W. Thomson, all of Toronto; and Alf G. Salmon, Ottawa, and Robert M. Barr, Hamilton, Ont.

The financial aspects of a dealer's business came in for considerable discussion at the convention, which was held at the Seaway Hotel, Toronto. M. M. Miller, president-elect, presented a "Case History of a Bankruptcy." He outlined the pitfalls connected with price cutting and stressed the importance of proper business methods in order to stay in business.

W. B. Coutts, associate professor of finance, University of Toronto, spoke on "How Far Can You Stretch Your Working Dollars?" R. A. Mackenzie, Household Finance Corporation of Canada, told dealers about the various types of consumer finance available. Richard Oliver, Toronto, outlined recommendations on "Pricing for Profits." Sales prospecting was covered by F. W. Thomson, Toronto.

Guest speakers from the United States were H. T. Gilkey, technical secretary, NWAHACA, and C. W. Nesell, Minneapolis-Honeywell Regulator Co.

### Crafts Institute Names Chairmen

CHAIRMEN of committees for 1957 have been announced by the Roofing and Sheet Metal Crafts Institute of New York. They include: Irving Koppelson, budget; Richard Freyberg, constitution and by-laws; Samuel Canal, entertainment; Bernard Fischer, house; Milton Magid, insurance; Lawrence Corvi, job classification; Peter Marks, labor; Irving Katz, licensing; Maurice Pels, membership; Walter Propper, publications, and Harold Fiedler, specifications and guarantees.

### Entenman Heads Toledo Group

DONALD ENTENMAN was elected president of the Sheet Metal and Roofing Contractors' Association of Toledo for this year. Neil MacKinnon was elected vice president; Clarence Christen, treasurer, and Don E. Dieterle, secretary. Elected as trustees were Wesley Bueche, A. H. Lumm, Jr., Herman Nordmann, Ray Seabloom and Clarence Christen.

### Junior Engineer Training Considered

A TRAINING COURSE for "junior engineers" in the heating-cooling industry is being considered by the Institute of Heating and Air Conditioning Industries in southern California and the faculty of the Los Angeles Junior

Trade Technical College. The proposed course would be designed to fill the gap between the journeyman and contractor and the mechanical engineer. Various committees are currently exploring the possibilities.

The training course could be conducted through the seven junior colleges in the Los Angeles area. It would draw on high school students interested in careers in the heating-cooling industry, and would also be open to people in the industry interested in advanced training short of an engineering degree.

Other training projects being considered by the Institute include a sales management course and construction of an exhibition home by trade school students.

### License Requirements to Be Changed

SEVERAL CHANGES in the license requirements for heating and air conditioning have been worked out with city officials in both Minneapolis and St. Paul, the Air Conditioning and Heating, Roofing and Sheet Metal Association of Minneapolis has revealed. Residence requirements for securing a license have been modified and proposals are being considered to eliminate duplicate licensing. Details will be announced as soon as final agreements are reached.

### Madison Association Hires Secretary

IN AN ACTION designed to strengthen the program of the local association, John Barsness has been hired as executive secretary of the Sheet Metal Contractors Association of Madison, Wis. The group was recently reorganized to increase its efforts toward promoting the industry in the area.

### Refrigeration Permits Now Required

A REVISION of the Milwaukee building code has been placed in effect relating to mechanical refrigeration. It covers the installation of all remote systems regardless of size and all unit systems exceeding five tons in size. A refrigeration permit must be procured for installation of such systems.

### Film Strip Added to OHI Library

A NEW FILM STRIP, "What About Thermostats," has been added to the library of the distribution division of the Oil-Heat Institute. The film, produced by Penn Control Co., Goshen, Ind., is in color and runs 42 minutes. It thoroughly covers the function, application, adjustment and servicing of thermostats. The OHI film strip library has been developed with the aid of members of the Institute's accessory division.

(More association news on page 123)





## WHAT MAKES A FURNACE LINE... *PROFITABLE?*

**CHEAP PRICES?**

*or*

**FULL CUSTOMER SATISFACTION?**

# COZY

**HAS THE ANSWER...**

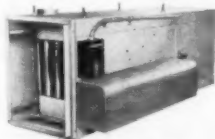


In recent months a good many builders were forced out of business because they shaved a few corners here and there to save money in building. The cost of correcting "cheap" mistakes in building closely parallels the situation of some furnace dealers we know who sell "cheap" furnaces and watch their small profit disappear as they make service call after service call to try to keep the customer happy.

There isn't any question about the necessity of starting with a quality product — a product easy and economical to install and capable of delivering 100% customer satisfaction. A COZY dealer enjoys the plus values of this high-quality, gas-fired line — his satisfied customers are often his best salesmen. The COZY year-around, high-profit sales plan assures him of continuing support to his sales program. For full details, write today!

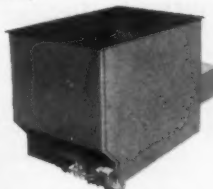
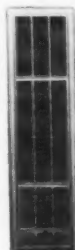


Compact UP-FLOW AND COUNTER-FLOW COZY FORCED-AIR MODELS give zero clearance; let you use 4" piping or conventional ductwork. Has exclusive Heat Wringer Heat Exchanger. Adaptable for air conditioning. 75,000, 105,000, 140,000 BTU input capacities.



COZY HORIZONTAL FORCED-AIR MODELS available in five capacities: 60,000 BTU to 140,000 BTU input. This space- and money-saver can be installed in attic, utility room, under floor... even without basement.

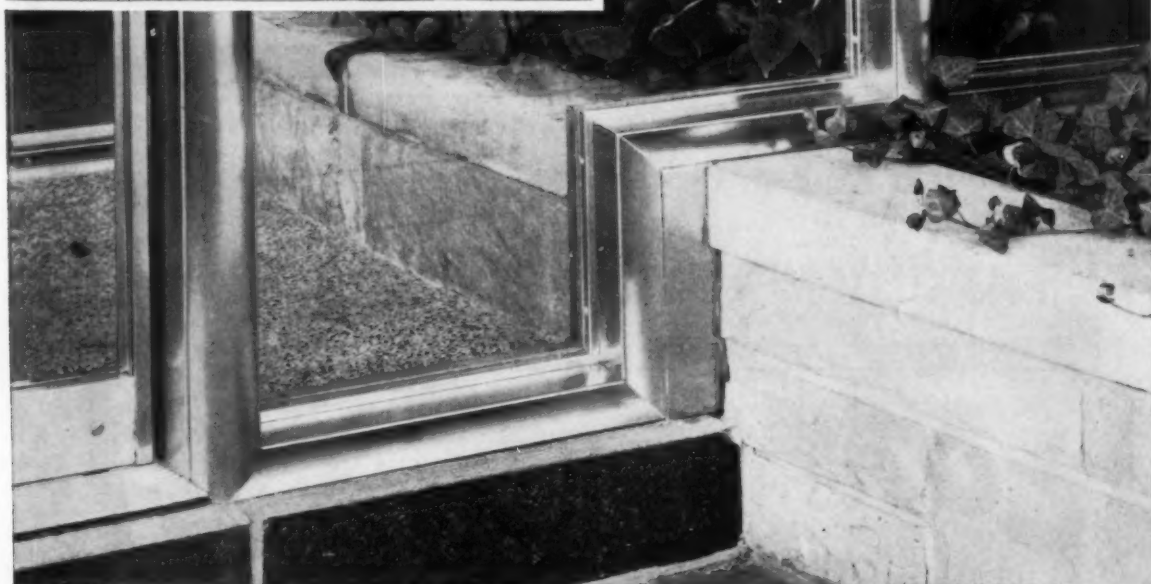
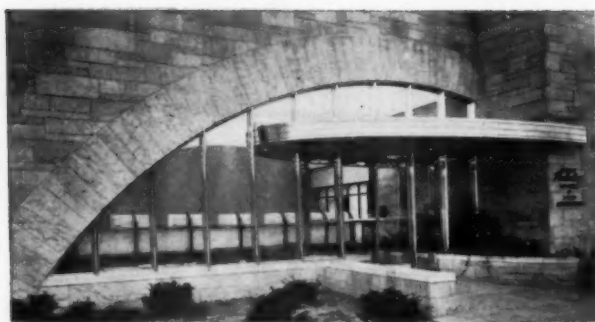
COZY WALL HEATERS, available in four capacities, single- or dual-wall installations; three different temperature controls are available. AGA approved under 1957 central heating standards.



The COZY CHALLENGER, the best buy in floor furnaces, has four capacities: 35,000, 50,000, 65,000, and 75,000 BTU.

**THE ADVANCE FURNACE CO.**  
WICHITA KANSAS

# COZY



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### *Happy Lifetime Combination*

#### "INFO" for Architects and Builders

- 1 "AL Stainless Steels for Building"—12 pages on stainless grades, properties, forms, finishes, standard "specs," uses and advantages
- 2 "Stainless Steels for Store Fronts and Building Entrances"—40 pages of valuable data on examples and details. AIA File No. 26D.
- 3 "Stainless Steel Curtain Walls"—A 24-page progress report on methods. AIA File No. 15-H-1.

*Write for Details*

Address Dept. AA-89

Here's an intriguing entrance design for a recently-built midwestern structure. Stone and stainless steel and glass . . . a planter that continues inside . . . two sweeping curves in opposed planes.

If there's any other material that can match the ageless, everlasting qualities of stone, it's *stainless steel*. Use it for its hardy, perennial beauty, that neither smoke, fumes nor weather can impair. Use it for its remarkable strength, greatest of all the structural metals. But above all,

use stainless steel because it wears so well and lasts so long that it's actually the most economical metal you *can* use . . . the least expensive in the long run.

Keep it in mind, too, that A-L Stainless Steel is versatile—you can employ it in your structures in everything from building hardware to an entire curtain wall design. • If we can help you with any data or engineering assistance, call on us. *Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.*

For Stainless Steel in ALL Forms—call

# Allegheny Ludlum

Warehouse stocks carried by all Ryerson Steel plants



WSW 6059

## WITH THE ASSOCIATIONS

(Continued from page 120)

### Detroit Urges Action on Gas Supply

A LETTER to the Michigan Public Service Commission was written by N. J. Biddle, executive secretary, Detroit Warm Air Heating Association, urging prompt action by the commission on an application by the Michigan Consolidated Gas Company for approval to connect 80,000 additional space heating installations. The letter pointed out that the gas company is rapidly reaching the limit of a previous approval for 500,000 space heating jobs. Mr. Biddle pointed out the severe hardship on dealers when gas supplies are kept on an "off-again, on-again" basis. Members of the association were urged to write similar letters to the commission.

### OHI Continues Fight Against "B" Flues

OIL HEAT INSTITUTE reports that its fight against "B" flues is gaining ground. A public relations firm has been appointed to assist in the campaign. Articles have been prepared and circulated to home magazines telling the many advantages to homeowners of all-purpose flues. A kit for local chapters is being prepared, outlining a campaign of action for them to follow in joining the fight.

The city council in Baltimore recently enacted a safe chimney ordinance to guard against misuse of "B" flues. Under the ordinance all homes completed in the future and using "B" flues will be required to display prominently a permanent label calling attention to the restrictions governing the use of this flue.

### John Heads Dayton Association

THE ANNUAL ELECTION of the Dayton Heating, Air Conditioning, Sheet Metal and Roofing Contractors Association was held in April. Dick John was elected president, Pete Ross was named vice president, and Ed Campbell and Don Lecompte were chosen for the board of directors. The program for the meeting featured a panel discussion on the problems of roofing, industrial sheet metal and air conditioning.

### Battle Creek-Kalamazoo Meet

A JOINT MEETING of the Kalamazoo Sheet Metal, Roofing, Heating and Air Conditioning Contractors' Association and the Battle Creek association was held in April at Galesburg. A proposed heating, air conditioning and ventilating code was discussed. R. H. Pettinga, Grand Rapids, spoke on "How to Make a Profit in Our Present Day Market."

The Kalamazoo association and the local chapter of the American Society of Heating and Air Conditioning Engineers held a joint meeting in March.

### Coming Events

#### June

June 3-5—American Society of Refrigerating Engineers, annual meeting, Hotel Fontainebleau, Miami Beach, Fla. R. C. Cross, Executive Secretary, 234 Fifth Ave., New York 1, N. Y.

June 4-7—Biennial Eastern Exposition of Oil Heat and Domestic Cooling, Hotel Statler, Boston. Thomas G. Colter, chairman, 839 Beacon St., Boston.

June 5-7 — National Warm Air Heating and Air Conditioning Association, summer convention, Fairmont Hotel, San Francisco. George Boeddener, Managing Director, 640 Engineers Bldg., Cleveland 14.

June 13-16—Carolina Roofing and Sheet Metal Contractors Association, annual convention, Ocean Forest Hotel, Myrtle Beach, S.C. Julian McKeithan, chairman, 1219 Fairway Dr., Wilmington, N.C.

June 24-26 — American Society of Heating and Air-Conditioning Engineers, semiannual meeting, Manoir Richelieu, Murray Bay, Que. A. V. Hutchinson, executive secretary, 62 Worth St., New York 13.

#### October

Oct. 7-9 — American Gas Association, annual convention, Kiel Auditorium, St. Louis, Mo. C. S. Stackpole, managing director, 420 Lexington Ave., New York 17.

#### November

Nov. 14-16—American Society of Refrigerating Engineers, semiannual meeting, Shoreland Hotel, Chicago. R. C. Cross, executive secretary, 234 Fifth Ave., New York 1.

Nov. 18-21—Air-Conditioning and Refrigeration Industry, 10th exposition. International Amphitheater, Chicago. Air-Conditioning and Refrigeration Institute, 1346 Connecticut Ave., N.W., Washington 6, D.C.

Nov. 18-22—National Warm Air Heating and Air Conditioning Association, annual convention, Hotel Morrison, Chicago. George Boeddener, managing director, 640 Engineers Bldg., Cleveland 14.

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45° Boot Box  
provides extra long  
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installed inside body  
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No. 945 — 45°  
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*The really complete line of precision  
quality fittings — give you . . .*

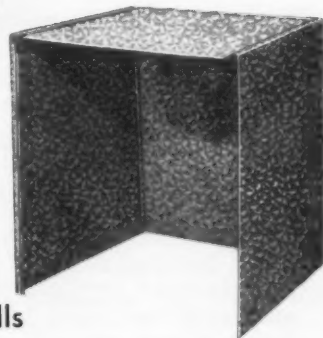
- ★ faster installations — greater profits
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on RESIDENTIAL WARM AIR HEATING--AIR CONDITIONING--and SHEET METAL

(Reprinted from articles originally appearing in AMERICAN ARTISAN.)

Mail order to Keeney Pub. Co., 6 No. Michigan Ave., Chicago 2, Ill.

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S. W. Reid tells how to deal with 'Special Air Conditioning Problems'...how to analyze owners "complaints"...diagnose what's wrong in each case...adjust or replace whatever parts are causing trouble...how to convert an existing gravity system to a comfort a.c. system...how to organize or enlarge an air conditioning department, proper forms and best procedures...how to train installers, service men, etc. Valuable "Know-How" available nowhere else! A wealth of data for all engaged in comfort air conditioning!

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Reprinted articles by N. J. Biddle, Secretary, Michigan Heating & Sheet Metal Assn., who discusses proper methods for accurately estimating materials, labor, and overhead costs...for determining the right bid-price that will insure you proper PROFIT-PROTECTION job-to-job. "Must" reading for dealers and contractors who want to quote on and get future jobs at correct bid-prices, with adequate net profit to themselves.

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Based on cost records covering many thousands of duct jobs, these 21 tables show the minutes of time and pounds of material required to fabricate more than 2,000 different sizes and types of duct sections and fittings. All duct depths from seven to twelve inches, and all widths from four to forty-four inches are covered. You need know only the sizes of the sections or fittings to be made up in order to read off from the tables the material and time needed to fabricate each one.

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Practical methods for developing and cutting patterns for fittings and typical sections used in residential air conditioning, ventilating, and forced air heating systems. Simplified rules by Wm. Neubecker and true geometrical methods for the more complicated fittings, with actual drawings for 56 fittings.

★ CORRECT PRACTICE IN INDUSTRIAL SHEET METAL WORK -- 2nd Printing -- 218 Pages...\$1.50

Contains all basic design and engineering data necessary for the proper planning and installation of fume removal, dust collecting, wood-waste removal, ventilating and other industrial sheet metal systems and equipment. Made up in the main of data published in American Artisan, this book offers sheet metal contractors dozens of practical designing ideas, layouts, installation kinks, tables and charts, contributed by more than 50 of the country's leading industrial sheet metal experts.



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## Another Norman-Engineered First Opens Profitable New Markets For You!

### *Norman Three-Sixty*®

Forced Convection Overhead Gas Heater

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Here's how the Norman Three-Sixty assures constant air circulation without stratification: An intake fan draws air from the floor up into the bottom of the unit where the air is heated and distributed outward and slightly downward in a full 360° radius to form an umbrella of comfortable warmth.

Consider the advantages of the four Three-Sixty features listed above, and you'll see why this smartly styled circular overhead gas heater opens up new profit possibilities.

The new Norman Three-Sixty has dozens of other design, performance and safety features to put it in a class by itself in unit heaters.

Mail the coupon today for complete details on the Three-Sixty and other profitable items in the Norman line of quality gas-fired heating equipment.



Norman Southerner horizontal forced air gas furnace. A.G.A. approved as central forced-air furnace or unit heater. Also approved for attic installation. Backed by 10 year warranty.

Norman Gas Conversion Burners for residential, commercial and industrial applications are available in sizes from 50,000 to 2,000,000 B.T.U.

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company



# EQUIPMENT DEVELOPMENTS

The latest information on manufacturers' developments is presented here with brief summaries of the applications of these products. For additional product information which is available, see this month's New Literature department

## Noiseless Lock Seaming Hammer

NOISELESS HAMMER designed to cut lock seaming time for sheet metal ducts, eliminate wrinkles or unevenness, and perform its function without noise—*Bell Machine Specialties, Dept. AA, 4813 Tremont Ave.,*



*Trevose, Pa.* Engineered to handle ducts up to 26 ga steel or 0.032 in. aluminum, entire portable hand tool is 14 in. long, weighs about 4½ lb. No electricity or other power is required. Tool consists of a flattening barrel of seamless steel tubing that rolls on a steel shaft with rubber hand grips. Cast iron bearings are featured. Unit is said to do complete inserting, folding and flattening operations in three rolling operations. It inserts tab into lock, flattens lock to 45 deg angle, closes lock flat with roller motion, the company states.

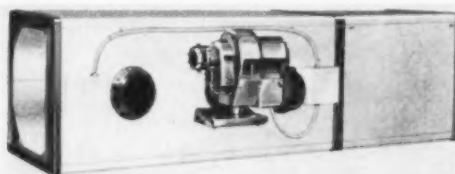
## Four-in-One Control

MODEL C-17 control designed to operate up to four individual devices on air conditioning systems automatically—*Ranco, Inc., Dept. AA, 601 W. 5th Ave., Columbus 1, O.* Two independent, single pole, double throw switches are operated by single temperature power element and permit up to four switching combinations for cut-in and cut-out operation; compressors, circulating fans, solenoid-operated reversing valves, signal mechanisms, etc. can be arranged in combinations to meet system requirements. Unit accommodates two-stage cooling when used with two compressors; it is applicable to heating-cooling operations when used with compressor and solenoid-op-

erated reversing valve. Liquid-filled temperature power element makes it independent of cross ambient conditions.

## Horizontal Oil-Fired Furnace

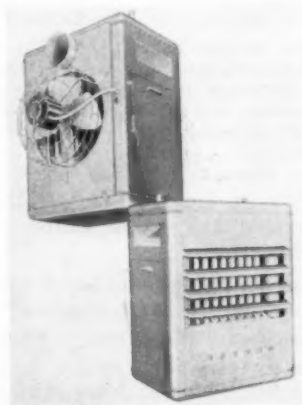
"STARFIRE STOWAWAY" oil-fired horizontal furnace with fin type heat exchanger made of quick heating steel—*Lennox Industries, Inc., Dept. AA, 200 S. 12th*



*Ave., Marshalltown, Ia.* Combustion gases are forced through long thin fins; special turbulators force air from return ducts to scrub heat exchanger fins to pick up maximum heat, the company states. Combustion chamber is lined with lightweight material which cools instantly when burner shuts off, eliminating reflection of heated air back to nozzle to form clogging carbon deposits.

## Suspended Unit Heater

GAS-FIRED SUSPENDED unit heater with two speed fan control and controls centralized within the cabinet—*Reznor Mfg. Co., Dept. AA, Mercer, Pa.* "Flexi-Temp"



control system is optional in 25,000, 50,000, 75,000 and 100,000 Btu suspended models. Control system is designed to minimize temperature fluctuation and

(Continued on page 132)





## **Bethcon: not too soft, not too stiff**

Next time you get a piece of galvanized sheet in your hands, flex it back and forth a few times to get the "feel" of it. If that piece of steel just happens to be Bethcon, we'll bet it feels just right. Not limp and lifeless, not stiff as a board, but full of life and workability.

Translate that into terms of shopwork and finished product. It means that Bethcon will form up readily on your brakes and lock-formers. And it also means that the completed ductwork will be strong and rigid, ready for many long years of trouble-free service.

There is, of course, a very sound reason for Bethcon's ideal qualities. Our continuous galvanizing lines at Sparrows Point, Maryland, are of the very latest design, and include a continuous annealing process which gives the

sheet just the right blending of strength and ductility.

Continuous galvanizing also bonds the zinc to the base metal much more tightly than conventional methods; so tightly, in fact, that the coating will not flake off even when the sheet is bent back on itself. It also does away with the old familiar bead on the drip end of the sheet.

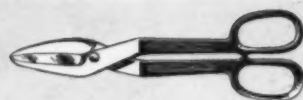
You can order Bethcon sheets in cut lengths or coils, 13-ga and lighter, in either plain open hearth or copper-bearing (Beth-Cu-Loy) steel for the base metal, depending on your requirements. For further information, just get in touch with the nearest Bethlehem sales office.

**BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.**

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COMBINATION PATTERN  
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No. U416, 16" only.



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No. T412, 12" & T47, 7".

STANDARD PATTERN, No. S410  
Seven other sizes, 7" to 14".



AVIATION SNIPS, No. V19R  
Right Hand, Cuts to left.



AVIATION SNIPS, V19L  
Left hand, cuts to right.



NEOPRENE INSULATING SLEEVES  
Available for all Aviation Snips. Here shown  
on No. V19S, straight cut.

Crescent Tinners' Snips are forged of selected steel and blades ground on special grinding machines. They are hardened by Crescent's own selective induction process to insure long, satisfactory service. These easy-cutting, well-balanced snips are made in four patterns; standard, circular cutting, combination and heavy duty.

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AVIATION SNIPS. Keenly ground, hard, tough alloy steel blades with machine serrations...can be factory reground. Compound leverage produces tremendous shearing power. Three patterns.

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*Give Wings to Work*

*Sign of the Artisan  
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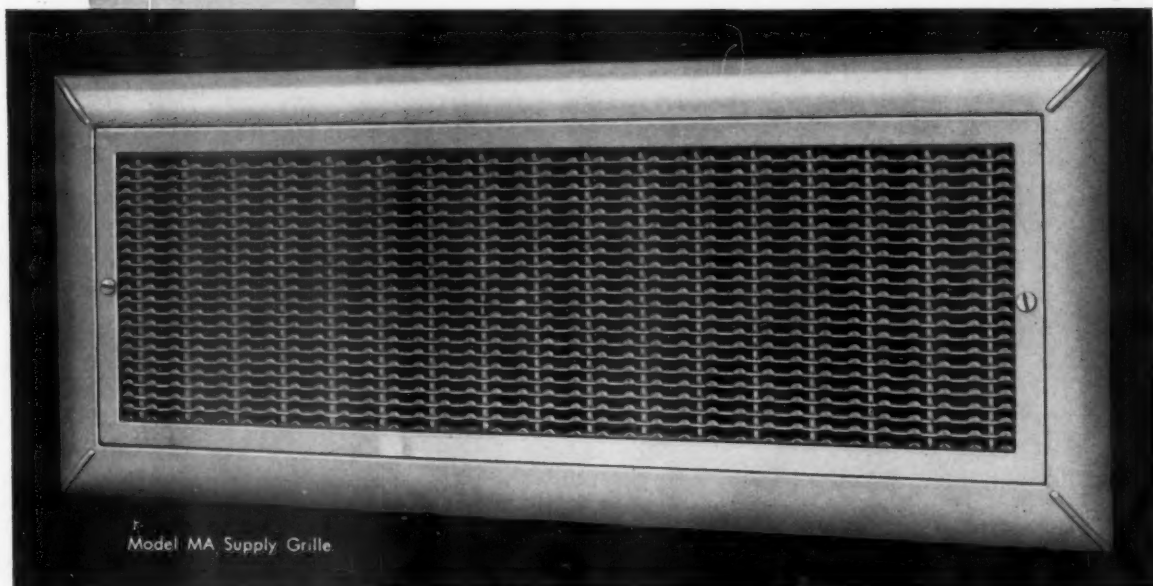
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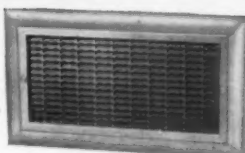


# Uni-Flo Grilles

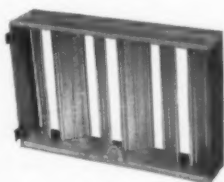
**make air behave**



Model MA, Supply Grille



Model MF Return Grilles match the MA Supply Grille, above. A variety of frame styles in a complete line of both supply and return grilles provides continuity of appearance.



Opposed-blade volume control with gang-operated blades provides efficient, nondirectional control of air flow — easy adjustment.

Uni-Flo Grilles coupled with published data from the widely recognized Uni-Flo Laboratory eliminate guesswork. Performance guaranteed when used according to these data. Uniform comfort maintained throughout occupancy space, even with temperature differentials up to 25° F. Air pattern easily adjustable after installation.

Key-operated opposed-blade volume control available for easy system balancing. Key operation resists unauthorized adjustment. Removable, adjustable core and wide variety of frame styles meet various architectural requirements. Tamper-resistant design ideal for use in institutions.

And remember . . . only Barber-Colman combines skills in both air distribution and automatic temperature controls for *undivided* responsibility.

**NEW CATALOG** — write for new complete grille catalog. Fully illustrated with photos, line drawings, and installation detail drawings. Sample specifications.



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## equipment developments

(Continued)

approach CAC. Heat exchanger temperature adjusts fan speed from low to high as temperature increases, and reverses as exchanger cools, to maintain uniform temperature throughout the cycle. Winter-summer fan switch bypasses electric valve and allows fan to be operated independently for ventilation.

### Pushbutton Thermostat

"FASHION" model pushbutton room thermostat designed to capitalize on trend for pushbutton appliances for the home—*White-Rodgers Co., Dept. AA,*



1209 Cass Ave., St. Louis 6, Mo. Available in combinations to fit most heating-cooling systems, control offers two to five actual pushbuttons. Color scheme is designed to blend with any decorating scheme; contoured square shape will harmonize with modern, period or traditional motif, the company states. Hinged cover conceals dial settings, thermometer and dial with large knob indicator for touch-adjustment. Heating and cooling anticipation are featured. Unit is about the size of a pack of cigarettes, according to the manufacturer.

### Cooling Towers

SERIES S NATURAL DRAFT cooling towers featuring bolt-free construction—*Dover Mfg. Co., Dept. AA, 3117 Weatherford Ave., Independence, Mo.* Available in 2 ton and larger sizes, unit can be knocked down for installation in hard-to-reach spots, and re-erected in 20 minutes with a screwdriver, the company states. Basin is one piece, leak-proof unit of hot-dip galvanized steel; crown and tie-rod are also hot-dipped. Louvers are redwood.

### Gas-Fired Furnaces

"MASTER" AND "LIFEGUARD" lines of gas-fired furnaces with increased air delivery capacities matched to needs of cooling systems—*Day & Night Mfg. Co., Dept. AA, 700 Royal Oaks Dr., Monrovia, Calif.*

"Lifeguard" series has ceramic coated heating element for use where condensation is a problem. Both lines are in seven different models, the company states.

### Centrifugal Fan for Chemical Fumes

CENTRIFUGAL, non-overloading radial bladed fan constructed of polyvinyl chloride to resist corrosion in moving chemically laden air or gases—*Chicago Blower Corp., Dept. AA, 9867 Pacific Ave., Franklin Park, Ill.* All parts exposed to air stream are polyvinyl chloride. Designed for floor, platform or roof mounting, unit is in belt driven models from 12 to 40 in. in diameter. Performance ranges from 200 to 10,000 cfm at pressures up to 6 in. and from 1/4 to 10 hp at temperatures up to 150 F. Featured are pillow block bearings, oversized shafts, heat resistant paint; adjustable air discharge direction, the company states.

### Glass Fiber Humidifier Plates

"VAPOGLAS" humidifier plates, engineered to fit nearly all residential humidifier units—*Skuttle Mfg. Co.,*



Dept. AA, Milford, Mich. Package includes five corrosion-resistant glass fiber humidifier plates, in addition to adapters which permit installation in various types of humidifiers. Entire humidifier can be removed from heating unit without first removing the plates. Units in package total 304.8 sq. in.

### Insulation-Filtration Batting

"NY-SUL-LOFT" self-supporting batting made of nylon fibers, designed for thermal insulation, liquid filtration, vibration absorption and other uses—*Star Woolen Co., Dept. AA, Cohoes, N. Y.* As filtering medium, different degrees of separation can be achieved by using different denier fibers in the fabric or by using blends of deniers. Batting is anti-fungus, anti-mildew, rapid drying, and alkali-resistant. It is said to withstand continuous temperatures of 300 F. Nylon fibers are crimped and locked together by chemical-thermal process; resulting strength permits material to be used independently of supporting substances. Batting weighs 2 to 8 oz per sq yd; it is available up to 55 in. wide.

(Continued on page 135)



# FRIGIDAIRE

## Summer-Winter Air Conditioners



COMMERCIAL - RESIDENTIAL



SELF-CONTAINED  
AIR CONDITIONERS  
(STORE TYPE)



SELF-CONTAINED  
AIR CONDITIONERS  
(ADD-ON TYPE)



SELF-CONTAINED  
YEAR-ROUND  
CONDITIONERS



REMOTE TYPE  
AIR CONDITIONERS



AIR FLOW  
COOLING COILS



CONDENSING UNITS  
AND CONDENSERS



ROOM CONDITIONERS



GAS & OIL  
FURNACES

Get ready now...  
Get going NOW...  
with **FRIGIDAIRE**

Add up what Frigidaire can mean to you *now*—and in the boom season just ahead. The combined prestige and appeal of the FRIGIDAIRE name and reputation...

PLUS Frigidaire standards of quality throughout one of the world's most complete lines of summer-winter air conditioning equipment for both the commercial and residential markets...

PLUS Frigidaire promotion—at the national level—and with power-packed local campaigns and promotions in your own market...

PLUS the nation-wide network of Frigidaire Distributors, with one nearby to bring you products, counsel, sales help, training, and service "on the double."

Get ready *now*... get GOING now! For full facts phone your nearest Frigidaire Distributor or mail the coupon at once.

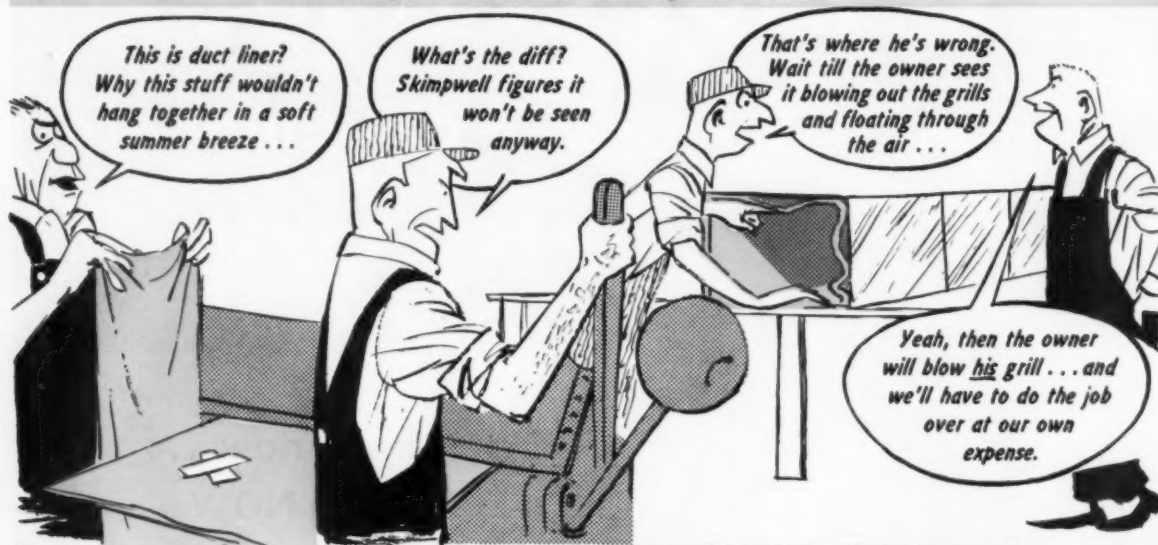
**FRIGIDAIRE DIVISION**  
General Motors Corporation  
Dayton 1, Ohio

AA-57

Please furnish me complete information and 20-page catalog covering the complete 1957 line of Frigidaire Summer-Winter Air Conditioners for Commercial and Residential markets.

NAME \_\_\_\_\_  
COMPANY \_\_\_\_\_  
STREET \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_

**SKIMPWELL AIR CONDITIONING CO.** learned that the "brakes" you get when you line ducts in the shop depend on the insulation you use . . .



**AND THEN** they started lining ducts in the shop with **ULTRALITE DUCT LINER** . . .



Let's face it, fellas — a flimsy, skimpy short fiber duct liner just won't get the job done. There simply isn't any substitute for adequate, permanent insulation that is carefully applied. **ULTRALITE DUCT LINER** is that insulation — a long glass fiber product specifically designed for lining ducts. Costs no more than ordinary insulations, and it won't ever let you down. Call your nearby **ULTRALITE** Distributor today and get samples and the full story!

YOUR **ULTRALITE** DISTRIBUTOR IS LISTED IN ADJOINING COLUMN

**GUSTIN-BACON** Manufacturing Company 

Thermal and acoustical insulations • Molded glass fiber pipe insulation • Pipe couplings and fittings  
220 West 10th Street, Kansas City, Missouri

See ad on facing page—  
then call your local  
**ULTRALITE distributor**  
listed below



## G-B ULTRALITE DISTRIBUTORS

(See ad on facing page)

ALBUQUERQUE, Mt. States Insulation Co.  
AMARILLO, Ball Distributing & Engr. Co.  
ATLANTA, Ga., Southern States Iron Roofing Co.  
BILLINGS, Mont., Big Horn Supply, Inc.  
BIRMINGHAM, Ala., Shook & Fletcher Supply  
Southern States Iron Roofing Co.  
BROOKLINE, Mass., Homans-Kohler, Inc.  
BUFFALO, Frontier Insulation & Supply Co.  
CHARLESTON, W. Va., Baldwin Asbestos Products Co.  
CHARLESTON HEIGHTS, S. C., Stafford Insulation Co.  
CHICAGO, E. C. Carlson Co.  
CINCINNATI, R. E. Kramig & Co.  
CLEVELAND, The Miles Materials Co.  
COLUMBIA, S. C., Southern States Iron Roofing Co.  
COLUMBUS, Santeler Brothers  
DALLAS, Insulation Supply Co., Inc.  
Payne-Ladewig, Inc.  
DAVENPORT, Republic Electric Co.  
DENVER, Gene Wright Lumber Co.  
DETROIT, Coon-DeVisser Co.  
EL PASO, Insulation & Specialties Co.  
FARGO, N. D., Smith, Inc.  
FT. SMITH, Ark., Gunn Distributing Co.  
FT. WAYNE, Ind., M. H. Hilt, Inc.  
FT. WORTH, The Bracken Co.  
GREENSBORO, N. C., Starr Davis Co., Inc.  
GULFPORT, Miss., Paine Supply Co.  
HOUSTON, Precision Insulation Co.  
INDIANAPOLIS, Central Supply Co.  
IRON MOUNTAIN, Mich., Champion, Inc.  
JACKSON, Miss., Paine Refrigeration Supply Co.  
JACKSONVILLE, Fla., Ferber Sheet Metal Works, Inc.  
JOPLIN, Mo., Joplin Cement Co.  
KANSAS CITY, Kelley Asbestos Co.  
LITTLE ROCK, Gunn Distributing Co.  
LOS ANGELES, Thorpe Insulation Co.  
LOUISVILLE, General Insulation & Roofing Co.  
MEMPHIS, John A. Denie's Sons Co.  
MIAMI, Southern States Iron Roofing Co.  
MINNEAPOLIS, Asbestos Products, Inc.  
MOBILE, Ala., Shook & Fletcher  
NASHVILLE, Southern States Iron Roofing Co.  
NEWARK, N. J., Eastern Fibrous Glass Specialty Co.  
NEW HAVEN, Conn., Insulation Supply Co.  
NEW ORLEANS, Eagle Asbestos & Packing  
NEW YORK, Eastern Steam Specialty Co.  
OKLAHOMA CITY, Ball Distributing & Engineering Co.  
OMAHA, Cardinal Supply & Mfg. Co.  
PHILADELPHIA, John F. Scantian, Inc.  
PITTSBURGH, Dravo Corp.  
PHOENIX, Ariz., Kircher Asbestos & Rubber Co.  
RALEIGH, N. C., Southern States Iron Roofing Co.  
RICHMOND, Va., Southern States Iron Roofing Co.  
ROCKFORD, Ill., Mott Brothers Co.  
SALT LAKE CITY, Bullough Asbestos Supply Co.  
SAN ANTONIO, The Bracken Co.  
SAN DIEGO, Western Fibrous Glass Products  
SAN FRANCISCO, Western Fibrous Glass Products  
SAVANNAH, Ga., Southern States Iron Roofing  
SEATTLE, Western Fibrous Glass Products  
SOUTH BEND, Ind., Mott Brothers Co.  
ST. LOUIS, A. G. Brauer Supply Co.  
ST. PAUL, Asbestos Products, Inc.  
SYRACUSE, N. Y., Industrial Supply Co.  
TAMPA, Fla., Eagle Roofing & Art Metal Works, Inc.  
TALLAHASSEE, Fla., Capital Refrigeration & Supply  
TULSA, Okla., Ball Distributing & Engr. Co.  
TUPELO, Miss., Paine Supply Co.  
WASHINGTON, Walter E. Campbell Co., Inc.  
WICHITA, General Metals, Inc.  
VANCOUVER, B. C., Fieck Brothers Limited

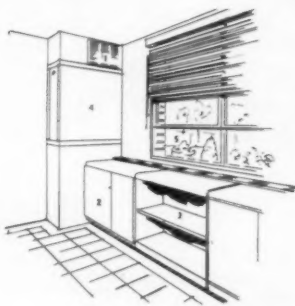


## equipment developments

(Continued)

### School Heating System

"COMFORT CURTAIN" classroom heating and ventilating system, said to combine residential type heating equipment with ventilation process to produce continuous circulation of clean air at right temperature—*Lennox Industries, Inc., Dept. AA, 200 S. 12th St., Marshalltown, Ia.* School is divided into modules, com-



plete with air processing unit and bookshelf or wall duct to convey conditioned air to each classroom in the module. Recirculated air passes over heat exchanger when heat is required, bypasses exchanger when heat is not needed; in either case, recirculated air is mixed with outdoor air in the unit. (During cooling cycle, more outside air is pulled into room without recirculation.) Series of discharge outlets along full length of each classroom provide even air distribution at proper velocity, the company states.

### Pressure Regulator

MODEL H-100 high capacity gas pressure pilot regulator which is applicable to any pilot light where controlled gas pressure is present—*Major Controls Co., Dept. AA, Highway 71 and Yorba Rd., P.O. Box 537, Corona, Calif.* Suitable for all gases up to 14,000 Btu capacity at 3/10 drop per hr, unit has maximum 2 in. flange width, is 2½ in. high, weighs 4½ oz and has port sizes of ⅛ and ¼ in. Unit is lightweight aluminum with integral cast guideposts for location and positive seal of neoprene impregnated nylon diaphragms. Unit

# Vitroliner Leads Again

prefabricated  
**VITROLINER CHIMNEYS**  
UL  
with  
*Protecto Top*  
**FOR ALL FUELS**

VITROLINER offers Architects, Project Builders and Building Contractors MORE FLEXIBILITY, CHOICE, SELECTION, QUALITY and MORE SPECIAL FEATURES than any "prefab" on today's market.

VITROLINER offers MORE TYPES of Chimneys—Type "E" and "L", for ceiling or basement installation. It offers MORE FLUE SIZES for the one CORRECT size the heating plant requires. There is also MORE permanent basic engineering—and MORE QUALITY MATERIAL, time-tested, tried and proven successful for over fifteen years.

The Chimney is MORE COMPLETE—Tailor-made to fit the individual job—no cutting or fitting—packaged and shipped direct from the factory. The "KD" Knocked-Down complete Housing Package is MORE quickly shipped from nearby Vitroliner Distributors and Dealers.

### VITROLINER IS PREFERRED BECAUSE OF THESE SPECIAL FEATURES

- LOWEST INSTALLATION TIME.
- SAVES FLOOR SPACE IN UTILITY ROOM.
- LIGHTWEIGHT—10-15 LBS. PER FT.
- TAILOR-MADE FLUE HOUSING AND ROOF FLASHING.
- CHOICE OF FLUE DIAMETERS—6", 7", 8", 10" AND 12".
- PROVIDES ATTIC VENTILATION.

LISTED BY UNDERWRITERS LABORATORIES FOR ALL FUELS. APPROVED BY BUILDING AUTHORITIES.

EXCEEDS F.H.A. AND V.A. MINIMUM CONSTRUCTION REQUIREMENTS.

Write for Circular today.



**CONDENSATION**  
ENGINEERING CORPORATION  
3111 W. POTOMAC AVE., CHICAGO 31, ILL.



replace costly  
"Rule of Thumb"

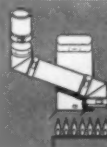
## with "SAFETY SYSTEM" GAS VENT TABLES

Now you can plan your gas vent installations without relying on costly and often unsafe "rules of thumb" . . . with the new Metalbestos "Safety System" Gas Vent Tables.

There's no more gamble or guesswork in gas vent installation when the "Safety System" Tables quickly tell you everything you need to know before you even go on the job. Handy and accurate, they benefit you four ways:

- ▶ you avoid unnecessary material costs
- ▶ you eliminate job-site planning time
- ▶ you install more vents per man hour
- ▶ you are sure of a safe job every time

For your **FREE** copy of the new Metalbestos "Safety System" Gas Vent Tables, contact your Metalbestos jobber or write Dept. B-5



**METALBESTOS** DIVISION  
WILLIAM WALLACE COMPANY - BELMONT, CALIF.

Stocked by principal jobbers in major cities. Factory warehouses in Akron, Atlanta, Dallas, Newark, Des Moines, Chicago, New Orleans, Los Angeles

## equipment developments (Continued)

features variety of vent connections, according to the manufacturer.

### Offset Rolls

OFFSET ROLLS for hand and power model combination rotary machines—*Niagara Machine & Tool Works, Dept. AA, 637-697 Northland Ave., Buffalo 11, N.Y.* Designed for joining round, heavy gage elbows and pipe sections quickly, the offset rolls are hardened, polished steel. Flange



is offset on one edge of each duct or elbow section; plain edge of connecting piece slides into flange, and duct is ready for welding or fastening. Unit is said to permit continuous forming of offset flange to varying angles required for mating elbow segments without removing work from machine.

### Clogged Filter Warning

"CLEAN-AIR SENTRY" bright red light which winks on when filter in air conditioning unit is clogged and stays on until filter is changed or cleaned—*York Corp., Subsidiary of Borg-Warner Corp., Dept. AA, Roosevelt Ave., York, Pa.* Light is featured in 11 of the firm's 13 room air conditioners for 1957, which range in capacity from 4900 to 16,000 Btuh.

### Stud Hammer

PISTON-DRIVEN, powder actuated fastening tool for fastening ducts etc. to concrete—*Velocity Power Tool Co., Dept. AA, 201 N. Braddock Ave.,*

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AMERICAN ARTISAN, MAY 1957



**NOW...add cooling profits  
to furnace profits  
with INTERNATIONAL'S**

**COOLING**

**PLENUM**

**SYSTEM**

**...adapts any furnace  
for summer cooling**

**...uses same ductwork  
for cooling as heating**



**SEE...SELL THE COMPLETE  
BLUE FRONT LINE**

Includes All-Year Twin Units, Cooling Plenum Systems, Horizontal Units, Air or Water Cooled Add-On Units, Air Cooled Compressor Units, Commercial Models, Unit Coolers.



Have you obtained your copy of our new **COOLING MANUAL**? It's fast becoming the standard text for dealers who want to master summer air conditioning. Illustrated, complete, easy to understand. Write for your copy today. \$1.00

More and more dealers are recommending International plenum-cooling systems to their furnace customers . . . and no wonder! It's the simplest, easiest way to sell air conditioning yet developed! Easiest, because with International plenums you can adapt any furnace for cooling. Another advantage — these units are designed to use the same ductwork that heats the home! Saves your customers money — saves you man-hours of work! The experienced care in design that makes International plenum-cooling so easy to install, also makes it a cinch to sell. What customer can resist these sales-clinching features:

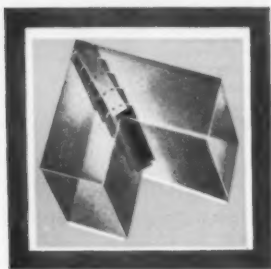
- Uses Same Ductwork For Heating-Cooling
- In Most Cases No Alteration Of House Required
- Needs No Extra Floor Space
- Whisper Quiet In Operation, Compressor Unit Installs Outdoors
- Adapts Any Furnace For Cooling . . . Upflow, Downflow
- Uses Basically Same Mechanism As Family Refrigerator
- Five Year Warranty
- **EASY TO INSTALL!**

See your International of Utica Distributor, or Write . . .  
International Heater Co., Utica 2, N.Y.

**INTERNATIONAL**  
SINCE 1842  
*of Utica*

# DURO DYNE

## DURO VANE-RAIL



Now! New, improved Duro-Dyne Vane-Rail assures unequalled rigidity and greater strength. New coil packing adds convenience, cuts waste.

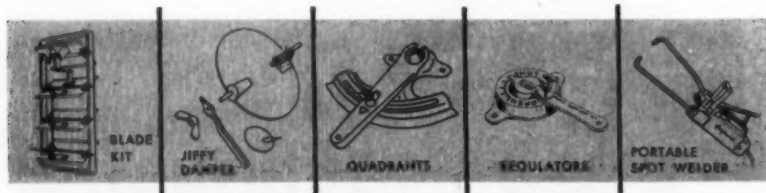
Yes, with Duro-Dyne's new "Vane-Rail" you make single or hollow air-turning vanes for square elbows (on-the-job) and save up to 70% on installed cost!

What's more, you make no compromise with quality. The point is this: You eliminate the cost of layout time, you forget about tab-cutting, you shear from scrap.

The result is a complete unit with accuracy that conforms to engineering specifications . . . that stays assembled . . . that assures no vane noise or whistle . . . that provides maximum free-area!

Call your local Duro-Dyne distributor today. You will be shown a quick, but profitable demonstration. Or—write today for full details and the name of your nearby local supplier.

**The Greatest Name in Sheet Metal Specialties**



**DURO-DYNE CORP., 800 Third Avenue, New Hyde Park, N. Y.**

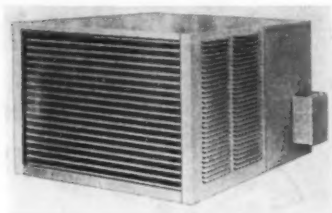
CANADIAN DISTRIBUTORS: Douglas Engineering Company, Ltd., Montreal and Toronto  
E. H. Price, Ltd., Winnipeg and Vancouver

### equipment developments (Continued)

**Pittsburgh 8.** Firing a blank cartridge, stud hammer drives specially developed nail stud through wood or sheet metal, anchoring the object to concrete. Safety features prevent ricocheting or accidental discharge. Nail stud sizes are 1¼, 1¾, and 2¾ in. in length. Depth of penetration is controllable. Hammer weighs about 6 lb.

#### Air Cooled Unit

AIR COOLED central summer air conditioner in 2 and 3½ hp sizes for residences and small commercial buildings—Crane Co., Dept. AA, 836 S. Michigan Ave., Chicago 5.



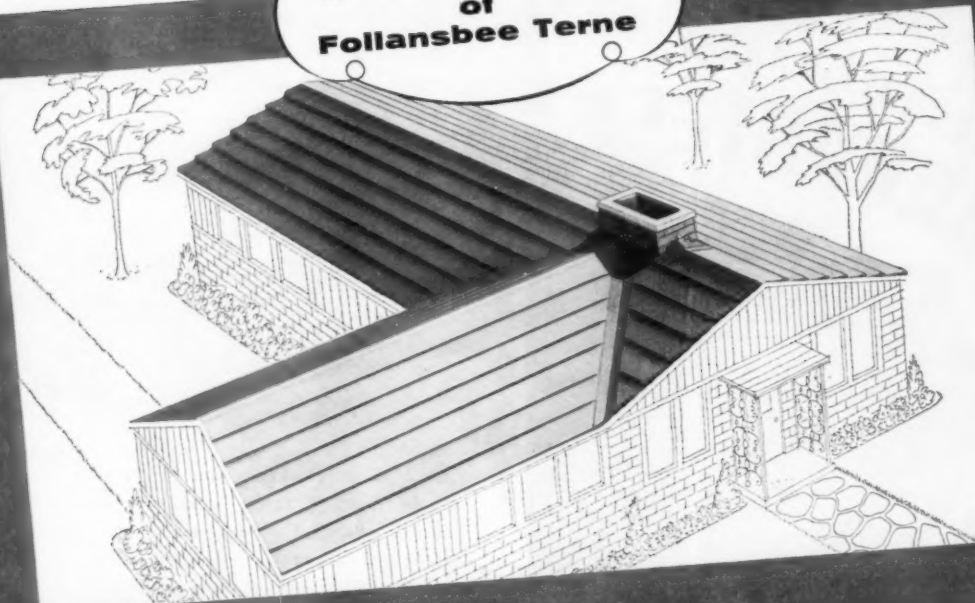
Both models have two compressors to permit two stage cooling. Unit can be mounted outside and ducted into warm air heating system, installed in attic to distribute conditioned air through separate duct system, or mounted in a window or through an outside wall with condenser on the outside and cooling coil inside. Insulated ductwork packages, sized for 5 or 7 rooms, are available for installation with the units. Ceiling diffusers and central return air grille and filter are included in the package.

#### Packaged Blower Unit

"HS UTILITY SETS" containing non-overloading wheel, adjustable discharge, and adjustable motor base—American Blower Div., American Standard, Dept. AA, Detroit 32. V-belt drive arrangement is overhung design. Units have adjustable pitch motor sheaves to permit changing speed on job. Sets are in 12 sizes with drive motors rated from 1¼ to

# Take a Tip from Bermuda...

**A Bermuda Roof  
of  
Follansbee Terne**



...and learn about the metal roof YOU can install

Ever since Follansbee introduced the new Bermuda Terne roof, architects and builders have been growing more enthusiastic about it . . . and using it. The architect likes it because it allows him to put new, distinctive design on the roof and get those long lines which add so much to the appearance of the contemporary house.

Builders (yes, tract builders too) like the Bermuda roof because it gives their houses quality buyers can see, and because it eliminates the possibility of trouble in one of the most potentially dangerous features of the house. You can sell the Bermuda Terne roof. You'll find it easy to install, and profitable too.



## FOLLANSBEE

**STEEL CORPORATION**



**Send Today  
for Complete  
Information on the  
Bermuda Roof**

**Follansbee Steel Corp.  
Follansbee, West Virginia**

Please send me additional information on the Bermuda roof of Follansbee Terne.

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

A-5

## GUARANTEED

... not for 5 years, not for 10 years  
... not for 15 or 20 years, but

UNCONDITIONALLY  
GUARANTEED



XXth CENTURY  
*Zeph-Air*

...FOR LIFE!

Zeph-Air is the gas furnace with the cast-iron heart. The entire heating element is unconditionally guaranteed — for LIFE!

A limited number of exclusive franchises protect our dealers — and we assist them with many kinds of dealer helps.

Write today to see if a franchise is open for you. We'll give you the details you need and want — no obligation, of course. We'll also be pleased to furnish complete information on our air conditioning units for use with our heating equipment.

# XXTH CENTURY

## HEATING & VENTILATING CO.

Since 1894

95 IRA AVE.

AKRON, OHIO

## equipment developments

(Continued)

10 hp. Ball bearings are standard; sleeve bearings are available on request.

### Power Squaring Shears

POWER SQUARING SHEARS with capacity of  $\frac{3}{8}$  in. mild steel and cutting lengths of 6 ft, 8 ft and 10 ft—*Wysong & Miles Co., Dept. AA, 625 Fulton St., Greensboro, N.C.* Featured are high tensile castings for more rigidity and less vibration. Full length plates



of  $\frac{7}{16}$  in. thickness can be sheared, the company states. A 36 in. range back gage swings up to permit shearing beyond 35 in. gage range. Standard equipment includes power holddown, automatic lubrication, safety treadle lock, stationary finger guard, front operated back gage, solid four edge blades, friction mounted flywheel, motor and controls.

### Hoods and Fans

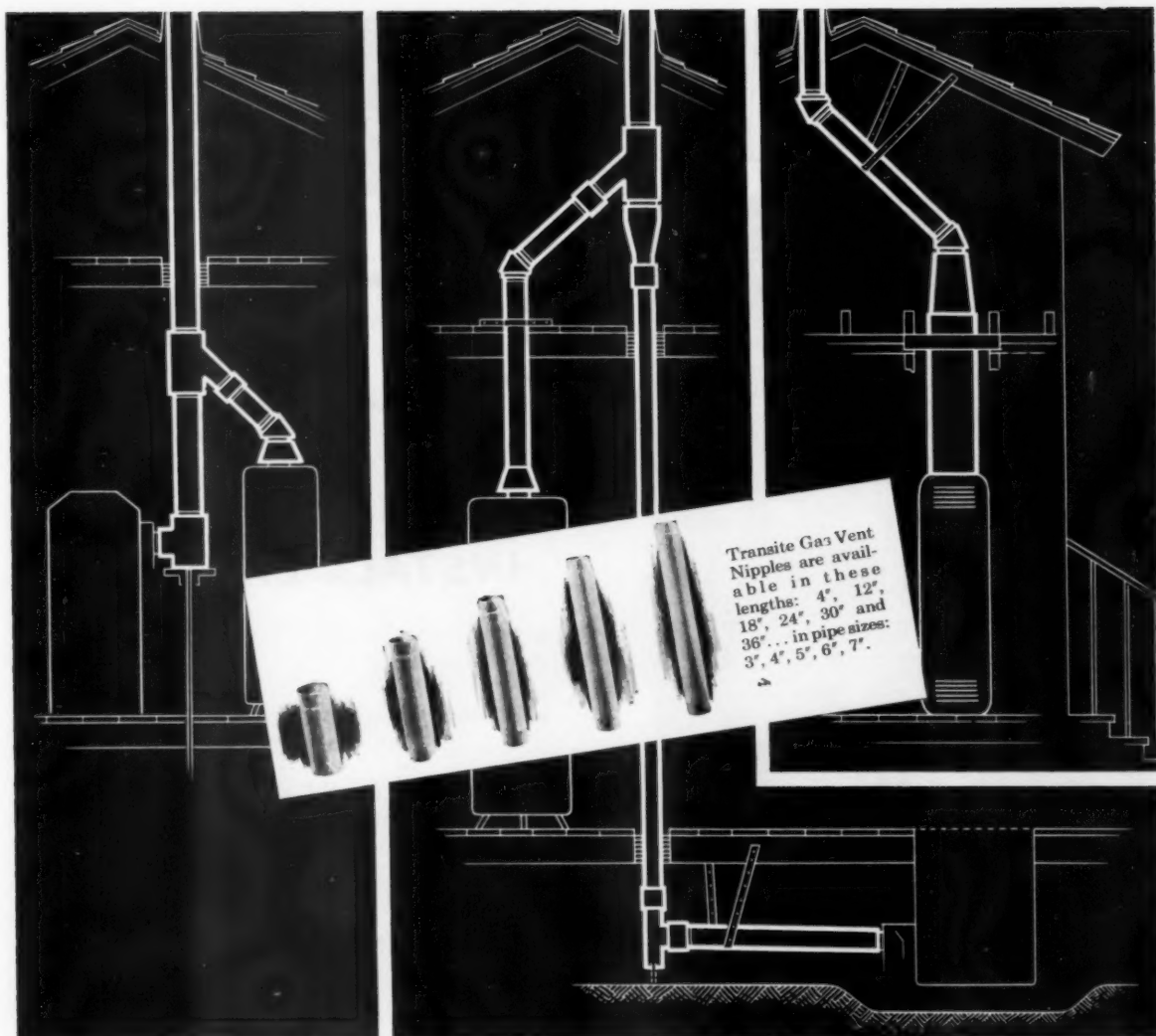
"KITCHEN-AIRE" model 100 hood and fan package containing 8 in. propeller type fan with all aluminum blades, single speed switch, double lights and toggle switch, washable aluminum grease filter and knock-outs—*Stewart Industries, Inc., Dept. AA, 320 E. St. Joseph St., Indianapolis 2.* Hoods are in 24, 30, 36 and 42 in. lengths. Also available are a conversion kit which converts wall model fan into a roof model by replacing regular motor cover with special type with clips which attach to special roof cover, and a line of splash plates with hardware and in widths to match all range hoods.

### Insulated Access Doors

INSULATED ACCESS doors of 24 ga metal with 18 ga frames—*Ventfabrics, Inc., Dept. AA, 640 N. Kedzie Ave., Chicago 12.* Door panels are insulated with glass fiber  $\frac{1}{2}$  in. thick and covered with 28 ga metal on air stream side. Door is removable from frame. Door frame has felt gasket. No parts of door project into air stream; doors can be mounted near splitters or dampers. Doors are  $12 \times 10$  in.,  $16 \times 12$  in.,  $24 \times 16$  in.; actual openings are  $10 \times 8$  in.,  $14 \times 10$  in. and  $22 \times 14$  in., respectively.

(Continued on page 144)





Transite Gas Vent Nipples are available in these lengths: 4", 12", 18", 24", 30" and 36"... in pipe sizes: 3", 4", 5", 6", 7".

## **5 new Transite Gas Vent Nipples!** save time, simplify installation

**H**ERE IS practical before-the-job and on-the-job assistance—five new lengths of Transite® Gas Vent Pipe Nipples that make it easier to design and install modern, efficient systems for venting gas appliances.

The five new lengths of Transite Nipples round out the already extensive line of Transite Gas Vent Pipe and Fittings. With the 4" nipple

and two pipe lengths (5' and 10') already available, you now have 8 Transite lengths to work with—all machined both ends... an increased selection for greater economy.

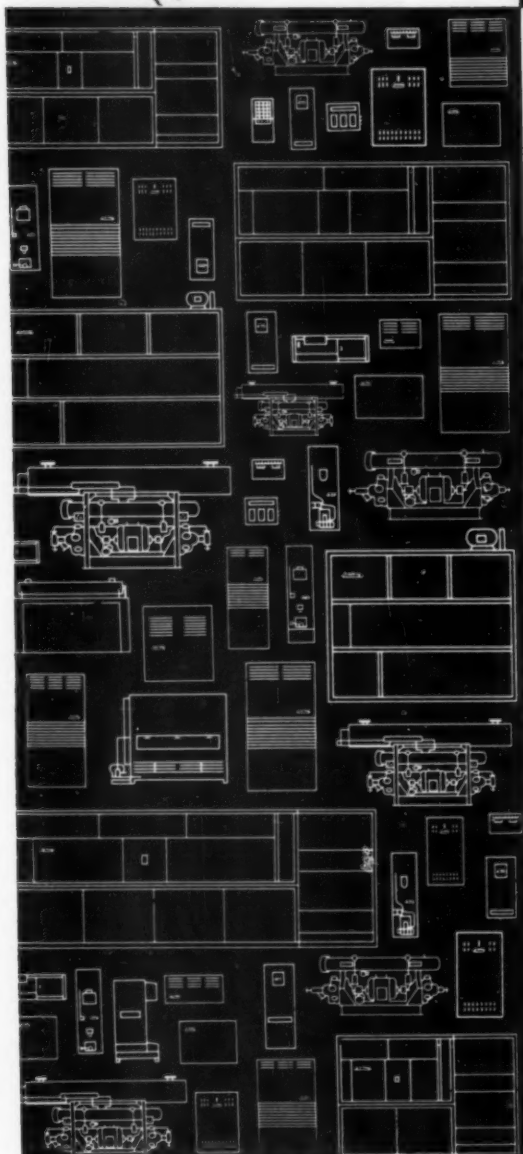
For further information on Transite Gas Vent Pipe—and the new line of nipples—write Johns-Manville, Box 14, New York 16, N. Y. In Canada, Port Credit, Ontario.



**Johns-Manville TRANSITE GAS VENT PIPE**  
an asbestos-cement product



DIAL  
"SPRINGTIME"  
ANY TIME  
with Chrysler's  
AIRTEMP



# AIRTEMP'S Furnaces..

## SELL EASIER INSTALL EASIER

An Airtemp franchise boosts furnace sales for dealers because:

- Airtemp furnaces are Chrysler-engineered for quality and dependability.
- You get merchandising aids which are tested and effective.
- Your customers can add matched Airtemp cooling now or later.
- Products with a well-known and respected name—Chrysler's Airtemp—are easier to sell.

You get quick delivery and expert help from a *nearby* factory-trained Airtemp distributor. Airtemp furnaces are completely assembled and pre-tested.

HEATING AND AIR CONDITIONING  
FOR A ROOM, A HOME, A BUSINESS,  
AN AUTOMOBILE



For prompt information on Airtemp  
franchise opportunities,  
mail coupon at right.

AIRTEMP DIVISION, Chrysler Corporation  
Dayton 1, Ohio

Gentlemen: Please rush full information on the  
Airtemp franchise!

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

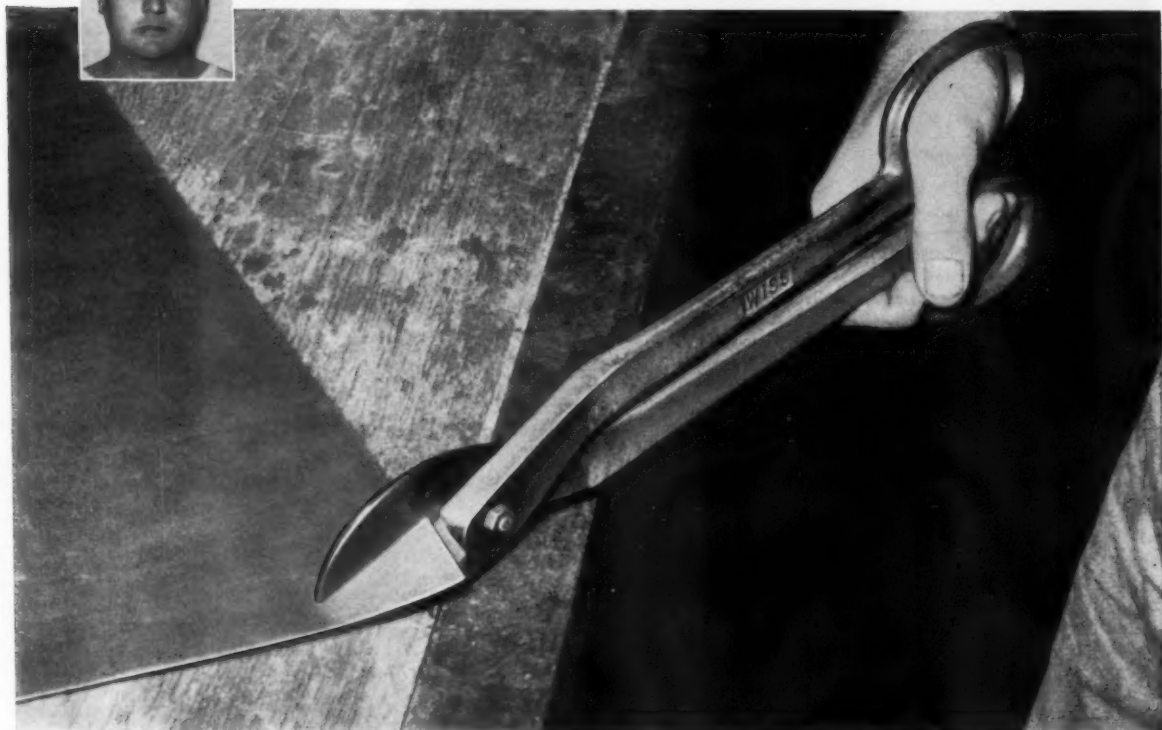
CITY \_\_\_\_\_

ZONE \_\_\_\_\_ STATE \_\_\_\_\_

# "IF THE JOB CALLS FOR SNIPS —IT CALLS FOR WISS!"



... says Lawrence S. Shaffer,  
Reynolds Corp., Chicago, Illinois



"I can't think of a metal cutting job that isn't done best by Wiss snips," says Lawrence Shaffer.

"Here at Reynolds Corporation we use them constantly for heating and ventilating work and all kinds of sheet metal jobs. Even on heavy gauge steel, Wiss makes the job easy."

Like Mr. Shaffer, you'll find any metal cutting job is easier with Wiss snips. They feel right, cut right, and stay sharp longer because they're hand-made by metal craftsmen for metal craftsmen. You can't miss with Wiss!

**LABORATORY TESTS SAY:** "Wiss inlaid snips show far superior cutting qualities to other snips tested and should be listed in a separate class from any solid steel snips."

**WISS INLAID BLADE SNIPS** — Lasting sharpness, tremendous power. High carbon crucible steel, welded to a hot drop-forged frame. Complete range of sizes and patterns including straight cutting snips, circular cutting snips, curved blade snips, and bulldog notching snips.



MADE BY METAL CRAFTSMEN FOR USE BY METAL CRAFTSMEN

*Wiss snips take as many as 200 steps to manufacture, many by hand.*

**WISS**

...always a cut above competition

J. WISS & SONS CO., NEWARK 7, N. J.

World's Largest Manufacturer of Shears, Scissors, Pinking Shears, Metal Cutting Snips and Garden Shears

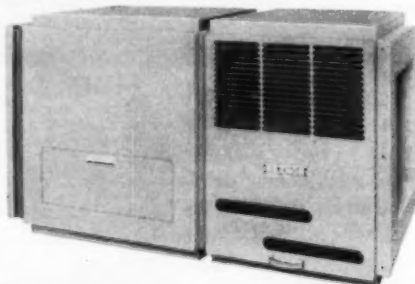


**"My prospects prefer the new Reznor PAC  
because it's designed for modern living"**

"Modern homes require modern heating equipment. Modern in operation, and modern in appearance, too. That's why my residential heating prospects go for the Reznor PAC in a big way. The PAC is styled to fit in modern homes. It's the most compact horizontal furnace on the market. And it's by far the most attractive. The PAC is the only completely enclosed horizontal furnace. No exposed controls . . . no dangling wires . . . no protruding burner. That's why it's ideal for suspended installation in utility room, recreation room and other living areas. Hung up out of the way it's as inconspicuous as a section of cabinet. If there ever was a furnace designed for modern living, it's the new Reznor PAC. My prospects love it."

"But the PAC has more than styling advantages over other horizontal furnaces. It's tops in heating efficiency and operating economy, too. And it has real advantages when it comes to solving tough installation problems. Because air flow can be in either direction, the access door to the controls can always be located on the most convenient side. And because the return air duct can be brought in at the top, bottom, end or side the PAC will fit in a lot of corners where no other furnace would go."

It's the same story wherever you go, the PAC is preferred for modern homes because it's designed for modern living. So don't fight it. Let your customers in on the horizontal furnace they're sure to prefer. Call your nearby Reznor distributor now for the complete story. You'll find him listed under "Heaters-Unit" in the yellow pages of your telephone directory.



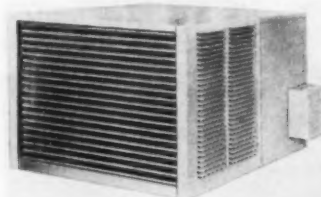
**REZNOR**  
THE WORLD'S LARGEST-SELLING  
GAS UNIT **HEATERS**

REZNOR MANUFACTURING COMPANY  
6 Union Street, Mercer, Pa.

## equipment developments (Continued)

### Two Stage Cooling Unit

"COOLPAK" two stage, air cooled unit for attic installations—*Century Engineering Corp., Dept. AA, 401 Third St., S.E., Cedar Rapids, Ia.* Rated at 22,000 and 36,000 Btu, unit features



twin compressors, air cooled condenser, squirrel cage blower and evaporator, utilizing evaporator condensate to provide cooling capacity. Prefabricated glass fiber duct work is available in either 5 or 7 room kits.

### Liquid, Film Adhesives

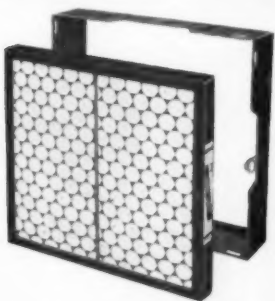
"PLASTILOCK" liquid and film adhesives for bonding different and similar materials together—*B. F. Goodrich Industrial Products Div., B. F. Goodrich Co., Dept. AA, 500 S. Main St., Akron, O.* Applicable for bonding porcelain enamel panels to zinc coated steel for curtain wall construction, liquid dries in air or oven. Film and liquid adhesive requires bonding temperatures from 300 to 350 F. Film ranges in width from  $\frac{5}{8}$  to 15 in., in gage from 0.008 to 0.035 in.

### Electrostatic Precipitator

"DUSTRONIC" electrostatic air cleaner which can be hung from ceiling and plugged into 115-v a-c circuit—*Radex Corp., Dept. AA, 2076 Elston Ave., Chicago 14.* Self-contained unit has two-speed fan and capacity of 800-1200 cfm. Activated charcoal filter is included. Unit is 18 x 32 x 26 in. Said to collect pollens, dust, smoke, smog, odors, etc., the unit requires no water or sewer connections and does not create ozone, the company states.



**EASILY-HANDLED  
FIBREBOARD CASING!**

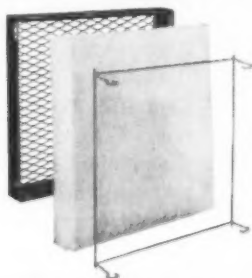


**AMER-glas**

Features AMERglas glass fibre media in 1" or 2" thicknesses contained in fibreboard casing. Metal frame units available in range of sizes and depths, permitting installation in series.

Here are the  
**BIG 3**  
replaceable-media  
air filters!

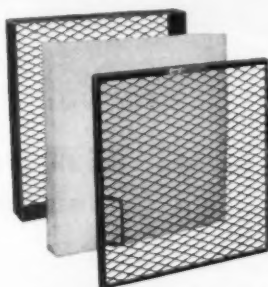
**NO CASING. LOWER  
MAINTENANCE COST!**



**RENU-glas**

Consists of a metal frame and a 2" AMERglas filtering pad. A spring retainer, holding media in frame, eliminates cost of casing to enclose pad and requires far less storage space.

**GREATER DUST-  
HOLDING CAPACITY!**



**RENU VENT**

Uses 3 1/2" AMERglas filtering pads between holding frame and cover. Media depth greatly increases dust-holding capacity without increasing the initial resistance proportionately.

**WRITE FOR BULLETIN 216A**

**AAF** **American Air Filter**  
COMPANY, INC.



355 Central Avenue, Louisville 8, Kentucky  
American Air Filter of Canada, Ltd., Montreal, P. Q.

AAF Dust  
Control Equipment



AMERglas Replaceable  
Air Filters



**BETTER AIR IS OUR BUSINESS**

Herman Nelson  
Propeller Fans



Herman Nelson  
Unit Blowers



# SONOCO

## SONOAIRDUCT

### FIBRE DUCT



meets and  
exceeds all

**F.H.A.**

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requirements for prod-  
ucts in this category

Jordan Residence,  
Hartsville, S.C.  
Marion Gandy, Builder,  
Moore Heating & Sheet  
Metal Co.  
Heating Contractor

## INSTALLS EASIER

...SAVES TIME...SATISFIES CUSTOMERS

SONOAIRDUCT exceeds all requirements of the F.H.A. specification "Criteria and Test Procedures for Combustible Materials Used for Warm Air Ducts Encased in Concrete Slab Floors". This fact is supported by industry accepted laboratory tests.

Economical, lightweight SONOAIRDUCT Fibre Duct is made especially for gas and oil fired, perimeter slab-floor heating systems. Aluminum foil lined. 23 sizes—2" to 36" I.D., up to 50' long. Can be sawed to lengths on the job. Free installation manual available.

See our catalog in SWEETS...



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CONSTRUCTION PRODUCTS DIVISION

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14 SOUTH PARK STREET

AKRON, IND. • LONGVIEW, TEXAS • BRANTFORD, ONT. • MEXICO, D. F.

## equipment developments

(Continued)

### Unit Heaters

MODELS US300-F and US300-B gas-fired suspended unit heaters with propeller fan and centrifugal blower, respectively—Reznor Mfg. Co.,



Dept. AA, Mercer, Pa. Two small fans or blowers are used in place of one large fan. Model US300-F has two 15 in. fans driven by single 1/3 hp motor; the other unit has a 1/3 hp motor for each blower. Units are  $33\frac{1}{2} \times 36 \times 40\frac{1}{4}$  or  $39\frac{1}{4}$  in.

### Water Heaters

"STARFIRE" LINE of gas-fired water heaters in 20, 30, 40 and 50 gal sizes with Btu input capacities of 27,000; 33,000; 33,000 and 32,000 respectively—Day & Night Mfg. Co., Dept. AA, 700 Royal Oaks Dr., Monrovia, Calif. Featured are front flue design with center draft diverter designed to provide higher inputs without stacking; glass lining; metered magnesium anode rod; and aluminumized steel baffle.

### Combination Furnaces

LINE of highboy and counterflow furnaces ranging from 55,000 to 180,000 Btu/h, designed with bypass system to accommodate extra volume of air when cooling is added—Holly Mfg. Co., Dept. AA, 875 S. Arroyo Pkwy., Pasadena 2, Calif. Sizes from 70,000 to 140,000 Btu are said to handle add-on cooling of 2 or 3 tons capacity; 5 ton capacity is recommended on larger models. Designed for compactness, the 100,000 Btu unit is 16 in. wide, 58½ in. high.



He's on the dance floor every morning at  seven!

The floor beneath this skilled worker's feet is a unique feature of General Electric's new Tyler, Texas plant where whole-house air conditioning equipment is built. Made like a dance floor of tough hickory planks laid edge-up instead of flat, it's periodically varnished to a gleam and vacuumed twice daily. Dust from a surface like this just can't be scuffed up to mar precision-machined components.

And it's here that compressors—heart of General Electric central system air conditioning—are assembled and hermetically sealed. The room itself is temperature-humidity controlled, workers wear lintless smocks and goatskin gloves to safeguard each step. Extraordinary steps these—but the result is a compressor of unsurpassed workmanship that contributes greatly to the overall excellence of General Electric air conditioning equipment.

Quality control is the keynote at *all* General Electric plants. To dealers, it means General Electric Home Heating & Cooling Systems are quality products that can be installed with complete assurance of customer satisfaction.

**Free! Promotional Sales Aids For Dealers!** Cooling Program Sales Power Pack #1. Loaded with powerful sales material—hard-working ad mats, radio and TV spots, and a direct mail campaign that seeks out your best prospects. Write your local distributor or General Electric Home Heating and Cooling Department, Tyler, Texas.

*Progress Is Our Most Important Product*

GENERAL  ELECTRIC

**HASTINGS  
HOIST-IT**

## INSTALLS ATTIC AIR CONDITIONER IN 30 MINUTES

**SAVE MONEY  
TIME AND TROUBLE**

**RAISE ANY ATTIC  
AIR CONDITIONER  
UP TO 18 FT.**

**HASTINGS "HOIST-IT"  
WILL RAISE  
UP TO 8,000 LBS.  
6 TO 18 FT.**

**COMPLETELY SAFE  
UNCONDITIONALLY  
GUARANTEED**

Write for Prices and  
Bulletin AA-57-AH



**HASTINGS AIR CONTROL**

3215 Leavenworth  
Omaha 5, Nebraska

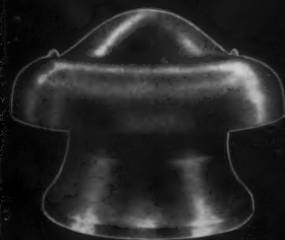


**GREENHECK**

## NEW CENTRIFLO TURBINE VENTILATOR

Ground deep groove ball bearing mounted in self-aligning, shielded bearing housing is the outstanding feature of the new "Centriflo" turbine ventilator. The bearing has a basic load rating of 300 lbs. which is fifteen times greater than the actual load on the bearing, the load being suspended from the bearing for a stable balanced condition . . . aluminum rotor, durable and weather resistant . . . rubber suspension of rotating unit and bearings to eliminate noise and vibration—the first in the turbine vent field. Made in sizes from 14" to 30". Write for details.

**FAN & VENTILATOR CORP.  
SCHOFIELD • WISCONSIN**



## POWER ROOF EXHAUSTERS

• AXIAL • CENTRIFUGAL

Designed to meet the demand for high performance and eye appeal at a reasonable price, the new GREENHECK Roof Exhauster with its low, smooth contours is consistent with today's modern building design . . . constructed of heavy gauge aluminum with ball bearing type motor, in a wide range of types and sizes. The centrifugal type is the non-overloading backward curve type sparkproof fan. Write for details.

## equipment developments

(Continued)

### Furnace Vacuum Cleaner

"SPIC-SPAN" Model P950H furnace vacuum with pleated filter engineered for three times normal filtering area without overlapping or clogging—Premier Co., Dept. AA, 755 Woodlawn Ave., St. Paul 1, Minn. Filter



need not be cleaned until machine is full. Two types of filter are provided; one for acid, mildew and flame resistance and the other a disposable paper unit. Unit weighs 28 lb, is powered by 600-w motor. Maximum lift is 66 in. with orifice closed.

### Sleeve for Wall Units

WALL SLEEVE for installing room air conditioners—Airtemp Div., Chrysler Corp., Dept. AA, 1600 Webster St., Dayton 1, O. Designed for in-wall and in-window installation of the company's 1800 series units, unit features collar which permits adjustment to exact thickness of the wall, the company states.

### Air Cooled Condenser

"DRICON" AIR COOLED condensers with "balanced circuiting" feature—Recold Corp., Dept. AA, 7250 E. Slauson, Los Angeles 22. According to the company, crossing the circuits balances amount of work done by each circuit, thereby increasing efficiency of the coil. Also featured are adjustable stand; slow speed, belt driven fans; galvanized housing; copper tube, aluminum fin coils, fan



**¡AMIGOS!**

HERE'S THE NEWEST  
IN SUMMER  
AIR CONDITIONING!



# NEW HEIL SUMMER AIR CONDITIONERS

*for residential and light  
commercial installation*

Senors, here is famous HEIL quality and reliability in a brand-new line of summer air conditioners—designed for residential or light commercial installations... with cooling capacities from 20,000 to 60,000 BTU/hr... plus a profit-winning price range to suit virtually every need!

***versatile!***

For use with or without existing ducts—counter-flow, highboy, lowboy or horizontal winter air conditioners!

***economical!***

New air-cooled HEIL Summer Air Conditioners need no water connections! Low in cost, low in upkeep... fully assembled, completely self-contained... with quick-disconnect fittings requiring no special tools!

***quality built!***

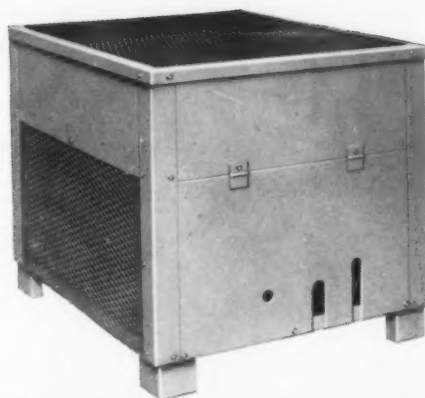
... to world-known HEIL standards for long-term, trouble-free operation... fully weatherproofed... completely leak-proof!

WRITE TODAY FOR FULL INFORMATION!

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3081 W. Montana St., Milwaukee, Wisconsin • Hillside, New Jersey

SALES OFFICES: Union, N.J.; Atlanta, Ga.; Cleveland, Ohio; Chicago, Ill.; Milwaukee, Wis.; Kansas City, Mo.; Denver, Colo.; Dallas, Texas; Los Angeles, Calif.; Seattle, Wash.



### 3 New Remote Air-Conditioning Units!

Model ACR-205 Economy Hi-Side	2 h.p. 20,500 BTU/hr. capacity
Model ACR-340 Standard Hi-Side	3 h.p. 34,000 BTU/hr. capacity
Model ACR-600 Standard Hi-Side	5 h.p. 60,000 BTU/hr. capacity

### 4 New Matching Evaporator Units!

**Vertical Flow Coils**—for use with counterflow highboy and lowboy installations.

**Horizontal Flow Evaporator**—for horizontal type furnaces; adaptable to highboy or lowboy installations.

**A-Type Evaporator**—mounted in plenum, for highboy, lowboy and counterflow installations.

**Blower-Evaporator Package**—used with matching hi-side unit to provide independent air conditioning system.



Model SCH-200

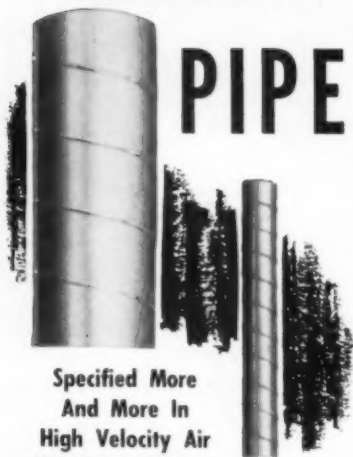
### 2 New Central Air-Conditioning Units!

Model SCH-200 .... 2 h.p.	20,050 BTU/hr. capacity
Model SCH-400 .... 3½ h.p.	40,000 BTU/hr. capacity



Model SCH-400

# SPIRAL Lockseam PIPE



**Specified More  
And More In  
High Velocity Air  
Movement Systems**

Rigidly constructed Spiral "Lockseam" Pipe by United Sheet Metal Co. is fast replacing longitudinal-seam pipe in high velocity systems. Seams are locked by a strong 4 ply lockseam . . . pipe interiors are smooth. Rigidity derived from this unique construction results in greater strength, faster installation and reduced job-site costs.

**Sizes And Standards For  
High Velocity Air—**

- 26 gage zinc-coated steel—diameters 3" through 8" • 24 gage steel—9" through 22" • Standard length 12'—lengths to 20' if required • Available in any specified metal 20 to 30 gage.

## PROVEN IN OPERATION

United's Spiral "Lockseam" Pipe has been specified and recently installed in over 400 major building projects . . . including hospitals, mines, government, university and commercial buildings, and churches.

**Write For Free Catalogue  
Showing Detailed Specifications  
And Applications**



**MATCHED FITTINGS  
AVAILABLE FOR  
EVERY SPIRAL  
PIPE DIAMETER**

# UNITED

**Sheet Metal Co.**

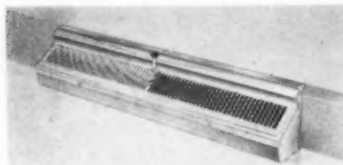
540 S. Drexel Ave., Columbus 9, Ohio

## equipment developments (Continued)

guard, precision ground shaft, self-aligning ball bearings, inside location of motor.

### Baseboard Diffuser

MODEL 170 BASEBOARD perimeter diffuser with 34 sq in. free area—*Air Control Products, Inc., Dept. AA, Coopersville, Mich.* Unit delivers a wide, fan shaped air pattern which can be varied by adjusting fins. Bal-



ancing damper can be set for desired cfm. Increased free area adapts unit to both heating and cooling applications. Unit fits 2 1/4 in. deep ducts in 10, 12 or 14 in. widths. Diffuser is 24 in. long, 4 in. high, projects 3 in. at base.

### Filter Material

"U-TRIM-IT" filter pad which can be cut to size required for cooling unit—*Owens Corning Fiberglas Corp., Dept. AA, 1930 Nicholas Bldg., Toledo 1, O.* Glass fibers are produced at a density which provides stability without use of frame or grille, the company states. Pad is cut to size by using old filter as a pattern.

### Cooling Line

EXPANDED LINE of cooling units featuring re-rating of all models in Btu capacities—*Bryant Mfg. Co., Dept. AA, 2020 Montcalm, Indianapolis.* Air cooled 560 series has increased ranges provided by two added condensing units with four matching coils. Model 556 air cooled unit is in 19,000 and 30,000 Btu sizes. Water cooled model 590 features field-serviceable compressor. Also available to Bryant dealers is a "Golden Rule" residential cooling load chart to help them determine proper size cooling units.

## YOU are invited to read and use AMERICAN ARTISAN

You who are making your livelihood from warm air heating, residential air conditioning or sheet metal contracting can best use the practical helps published in *American Artisan* each month.

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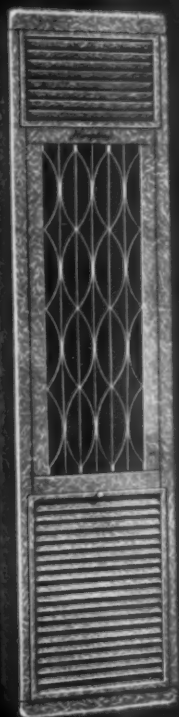
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Business . . .

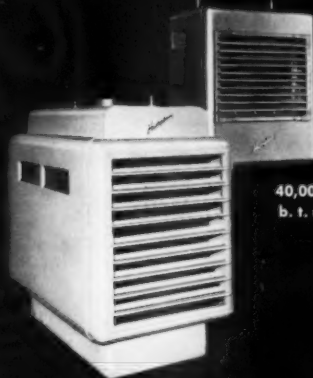
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Humphrey equipment is  
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**RECESSED  
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**UNIT HEATERS**



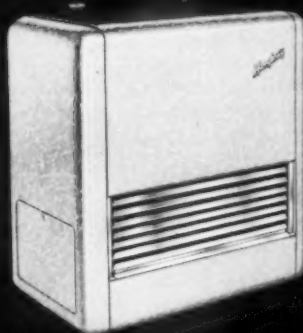
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65,000 to  
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**CLOSED FRONT CIRCULATORS**



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**RADIANTFIRE CIRCULATORS**



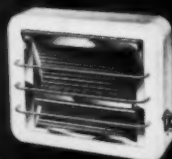
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world's most respected  
Gas Heating Line



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**GENERAL GAS LIGHT COMPANY**  
KALAMAZOO, MICHIGAN

**Blower-Cooling Coil Unit**

TYPE 917 blower-coil unit designed for operation with remote air or water cooled condensing units for 2, 3, 5 and 7½ ton capacities—Mueller Climatrol, Dept.



AA, 2005 W. Oklahoma, Milwaukee 15. Unit is suitable for suspended installation. Centrifugal blower can be used with extensive duct distribution system. Blower and motor have permanently lubricated ball bearings. Return air grille and air discharge plenum are optional. Cooling coil is copper tube with aluminum fins; thermostatic expansion valve controls refrigerant flow; motor is continuous duty type with overload protection and variable speed sheave. Bond-ized cabinet is 28 × 22 × 41 in.

**Furnace Vacuum Cleaner**

"TURBO-VAC" vacuum cleaner and blower suitable for furnace cleaning operations—Kent Co., Inc., Dept. AA, 435 Canal St., Rome, N.Y. Model 75 has tank capacity of 1 2/3 bu or 10 gal. Bypass type 1 hp motor admits no dust, dirt or water. Intake volume is 135 cfm; filter has area of 1000 sq in. Wheels and caster make unit portable. Model 45 has 2/3 bu or 5 gal capacity; model 55 has same capacities with tricycle mounting; model 65 has 1 1/3 bu or 9 gal capacity.

**Filter Pad Material**

"GLASFLOSS" 16 × 24 × ½ in. filter pad which can be cut with household scissors or knife to fit any size cooling unit—Pittsburgh Plate Glass Co., Dept. AA, 632 Ft. Duquesne Blvd., Pittsburgh 22. Fire-resistant and moistureproof filters are made of long glass fibers which do not splinter or pierce the skin.

**Window Units, Dehumidifiers**

FIVE WINDOW cooling units ranging from ¾ hp, 7½ amp to 2 hp, 230-v capacities and automatic dehumidifier with humidistat that turns unit on and off as humidity changes — McGraw Electric Co., Loneragan Mfg. Div., Dept. AA, 704 Clark St., Albion, Mich.

## NEW BUCKEYE

## FITTINGS...

Time

Saving

Now you can finish ductwork flush against the wall. New Buckeye End Boot design moves register connection from center of pipe . . . provides smooth, flat side for fast, snug installation. Do a Better Job . . . Faster . . . Specify Buckeye Pipes and Fittings

- Metal seaming adds rigidity to collars, fittings, assures firm, lasting pipe construction.
- Side take-offs are notched for easier connections
- Special packing for easy identification, handling
- Buckeye Snap-Tite pipes — save time, labor — just push sections together, edges interlock

If your local jobber cannot supply Buckeye pipes and fittings . . . contact us directly for the name of your nearest Buckeye Jobber

### BUCKEYE

FURNACE PIPE COMPANY

897 Ingleside Columbus 8, Ohio



# LESLIE ROOF VENTILATORS

- ★ A complete line...for every need
- ★ LESLIE guaranteed quality and performance
- ★ Prompt service from your LESLIE Jobber

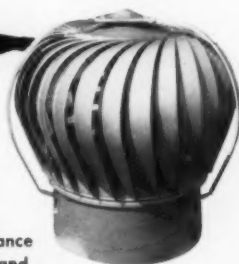
Now, you can get LESLIE Roof Ventilators . . . backed by the leading name in residential ventilation since 1939. This new line of Roof Ventilators incorporates the quality and many exclusive design features you expect from LESLIE products. Our enlarged production facilities assure prompt service on all your requirements.



## ROTARY TURBINE TYPE

**Standard Model**—Low cost, wind powered suction rotary turbine ventilator, made of 26 gauge galvanized steel with weatherproof Oilite bronze radial bearings and oil sealed ball-bearing thrust. Furnished in prime coated galvanized steel in 6", 8", 10" and 12" sizes.

**Industrial Model**—Heavy duty type designed to exhaust greater air volume. Provides effective heat, moisture and fume removal. Entire weight of rotor is supported by rotor suspension unit to provide true balance and proper alignment with rotor band. Rotor turns on heavy duty ground ball bearings. Furnished in prime coated galvanized steel in 6 sizes from 14" to 30".



## STATIONARY TYPE

Draws air by utilizing pressure differentials between inside and outside atmospheres. Versatile, economical . . . ideal for warehouses, factory, farm, schools, etc., where gravity ventilation is required. Stormproof design provides effective, low-cost ventilation under all weather conditions. Galvanized steel in 14 sizes from 6" to 65".



## SLANT ROOF TYPE

### NEW "SERIES 50"

#### COMBINES ALL THESE FEATURES:

- **EASIER INSTALLATION** — 4" wide flange . . . "no legs" or "posts" to get in the way.
- **WEATHERPROOF** — wide flange around top of stack, plus parallel baffle in rear.
- **MORE FREE AREA** — as certified by Metal Ventilator Institute.

- **BETTER APPEARANCE** — streamlined, one-piece top, and roof-hugging design.
- **USE WITH FANS** — 8" diameter stack fits round duct.
- **STURDIER CONSTRUCTION** — full .25" aluminum, 26-gauge galvanized steel, screen securely attached.

Available in galvanized steel or aluminum, the "50 Series" Roof Vent is YOUR best answer to the demand for a vent that installs without trouble, that looks and performs well, and provides top quality at the right price.

# LESLIE WELDING

Write for  
LESLIE LOUVER CATALOGS

CO., Inc.

2945 W. CARROLL AVENUE • CHICAGO 12, ILL.





## For top-quality insulation jobs, use the new black vinyl-coated MICROTEx DUCT LINER

L·O·F Glass Fibers' new Microtex Duct Liner, with its special black vinyl coating, helps you turn out high-quality jobs fast. Here's how:

Quality work is standard when you use Microtex Duct Liner. You can see the black vinyl coating . . . tell right away it's properly coated to resist air erosion. You know ahead of time that it will stand up, even at peak operating velocities.

Fabrication is fast and easy, too. Its black vinyl coating clearly marks the airstream side of Microtex Duct Liner. It cuts easily . . . requires no special skills or tools. This lightweight, semi-rigid glass fiber insulation is easy to handle when applied to the sheet with adhesive. Strong and resilient, it can be formed in the brake without damage.

And L·O·F Glass Fibers' Microtex Duct Liner offers your customers maximum insulation per dollar. It absorbs mechanical noises; insulates warm- and cold-air ducts against heat transfer. The metal of the duct acts as a vapor barrier. Ducts lined with Microtex need no painting inside, near grills or large registers, after installation.

Your nearest distributor gives fast delivery on low-cost Microtex Coated Duct Liner in 1½, 2 and 3 lb./cu. ft. densities, and in standard widths and thicknesses. For his name, write today: L·O·F Glass Fibers Company, Dept. 45-57, 1810 Madison Avenue, Toledo 1, Ohio.



L·O·F GLASS FIBERS COMPANY

• TOLEDO 1, OHIO

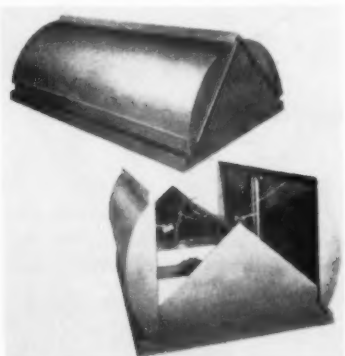
## equipment developments

(Continued)

Flush or adjustable mounted cooling units feature drawer type chassis, thermostat control, ventilation or exhaust functions, four way directional discharge grilles, two speed operation and extra filter. Dehumidifier has humidistat dial on top; it operates from 1/5 hp compressor, double-banked aluminum condenser coils and 8 in. fan. Unit has rubber casters for portability. Either double galvanized water collector or garden hose can be attached.

### Fire Relief Roof Vent

"PYROJECTOR" quick-opening fire vent to permit rapid escape of smoke, heated air and gases in event of fire—Swartwout Co., Dept. AA, 18511 Euclid Ave.,



Cleveland 12, O. Unit is installed and operates entirely above roof line. Two double wall dampers are opened outward by coil springs when fusible link melts at 212 F, to create a roof opening of 28 sq ft. This relief helps limit horizontal spread of flames. Unit is weatherproof when closed, can be used for extra ventilation.

### Gas-Fired Furnaces

"SUNNYLAND" LINE of gas-fired furnaces rated from 75,000 to 125,000 Btu input—Crane Co., Dept. AA, 836 S. Michigan Ave., Chicago 5, Ill. Featured is sectional type heat exchanger which is lighter and more compact than its predecessor, the company reports. Controls are hidden inside jacket for improved appearance. Line also includes year 'round packages with 2, 3 and 5 ton cooling units, in air and water cooled models, and a series of gas-fired duct furnaces without blowers for commercial application.

### Cooling Towers

LINE of cooling towers ranging from 3 to 20 ton capacities, featuring "capacity capsule" of specially formed high impact polystyrene sheets held in galvanized metal frame container—Acme Industries, Inc.,

**now!** A NEW CONCEPT IN  
**SOLDERING IRONS**

*the* **NEW**

**Insto-gas<sup>®</sup>**

**INTERNALLY FIRED TORCH**  
**with AIR RING heat control**



**For the first time** • A torch that meets all the requirements of the sheet metal trade!

**Easy Finger Tip Adjustment** • Gives the right soldering temperature for each job.

**Concentrated heat** • Enables light coppers to do heavy continuous work.

**Melts solder** • 90 seconds after lighting.

**Continuous heat** • Available all day.

**Saves time** • No stopping to change irons or replenish fuel.

**Saves money** • Operates up to 200 hours on a standard Insto-Gas Cylinder.

**Highly Portable** • Connects to cylinder with any length Insto-Gas hose.

**Safe** • No charcoal or gasoline fire hazards.

**Two Models** • No. 10-S-2 (2 lb. per pr. coppers) and No. 20-S-5 (5 lb. per pr. coppers)

APPROVED

By



and



### SOLDERING IRON HEATER

Clean, instant, easily controlled heat for conventional type irons is obtained with Insto-Gas No. 1500 Soldering Iron Heater. Keeps points out of flame and reduces need for tinning. Fits either cylinder or bench type Insto-Gas furnaces.

Use the complete Insto-Gas line — Torches — Furnaces — Cylinders. Available at better Industrial and Plumbing and Heating Wholesalers everywhere or mail coupon today.

INSTO-GAS CORPORATION, DETROIT 7, MICH.

AA

Please send information on Soldering Iron Torches and Heaters.

Name \_\_\_\_\_

Address \_\_\_\_\_

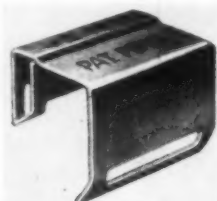
## equipment developments

(Continued)

Dept. AA, Mechanic & Ganson Sts., Jackson, Mich. Water dispersal over plastic pack is accomplished by drip pan and spreader arrangement which eliminates need for nozzles. Air flow is induced through tower by propeller fan enclosed in detachable housing. Steel housings are hot-dip galvanized.

### Gutter Hanger Connector

"SNAP STRAP" device for attaching gutter hanger to K type box gutter—Berger Bros. Co., Dept. AA, 229-237 Arch St., Philadelphia 6. Proportioned to fit all



standard makes of K gutter, front slot of device is placed over the outer hook on the hanger; strap is pushed up and over bead and locked into position with thumb pressure. Unit fits gutter bead snugly.

### Electric Humidifier

"CLIMATIZER" electric humidifier for warm air heating system, featuring adjustable face plate which assures level positioning of the body—Keeney Mfg. Co., Dept. AA, Newington, Conn. Unit has a built-in heating element. Available wired to operate when the blower comes on or for continuous operation, unit produces a vapor which is instantly introduced into the air stream. Dial permits selection of degree of humidity desired by home owner.

### Centrifugal Fan Cooling Towers

TYPES WB standard and KB "take-apart" centrifugal fan cooling towers designed to conserve up to 95 percent of cooling water used—Halstead & Mitchell, Dept. AA, Bessemer Bldg., Pittsburgh 22. Model KB indoor cooling towers can be dismantled for installation in difficult places. Centrifugal fan is designed to maintain even air flow even through long duct runs.

### Burner for Water Heater

"BLUE HALO" cast iron burner with horizontal burner flame which permits reduction in height of company's water heaters up to 18½ in.—John Wood Co., Heater & Tank Div., Dept. AA, 100 Washington St., Conshohocken, Pa. Burner has single annular port with in-



**STANDARD BRAKES**

Capacities up to 12-gauge sheet metal and bending lengths up to 12 feet.



**FOLDER BRAKES**

The simplicity and ease of operation make this a desirable machine for light sheet metal work. Seams and locks can be made efficiently. Capacity up to 20-gauge in three sizes of bending lengths of 36, 42, and 48 inches. Foot treadle clamp.



**PORTABLE BRAKES**

Set up shop right on the job. Capacity 20-gauge sheet metal in two sizes with bending lengths of 49 and 61 inches.

5095

## Hand Operated BENDING BRAKES

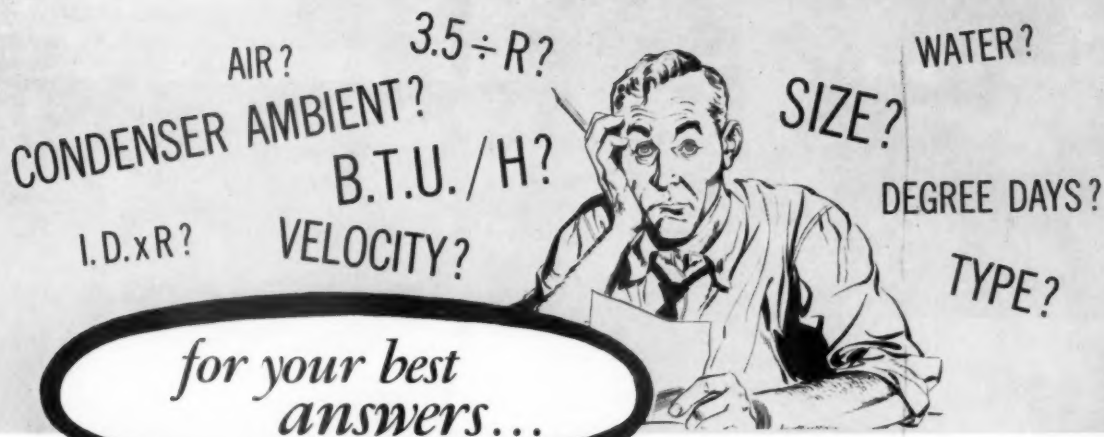
One Man Operation - Quick Adjustment - Rugged Construction



Descriptive Literature on Request.

**DREIS & KRUMP**  
MANUFACTURING COMPANY  
7404 S. Loomis Boulevard, Chicago 36, Illinois





## Majestic Air Conditioners

### ... the complete line

Take the direct approach to solving all your problems in air conditioning, simply by specifying and installing Majestic equipment. For every home cooling need, in new or old construction, there is a Majestic unit or combination of units tailor-made for

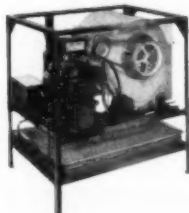
the job. In addition, Majestic furnishes competent engineering help, as well as a complete line of accessory equipment such as controls, ducts, diffusers, dampers, water towers, pumps, and similar necessary items.

### Do you need water-cooled equipment?

Majestic makes hermetically sealed, water-cooled air conditioners in 24,000 to 60,000 BTUH capacities, in blower-equipped casings that match and tie-in with any forced-air heating system or can be installed separately where wet heat is used. Units are available in up, down, or horizontal-flow, and feature Majestic's quiet compressors and super-efficient "V" coil.



### Do you need air-cooled equipment?



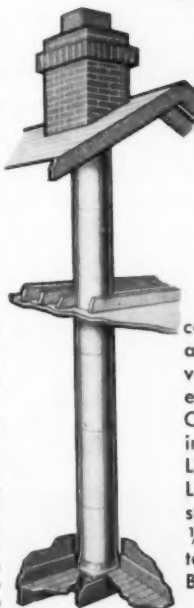
In remote air-cooled compressor-condenser units, with evaporator cabinets that use the furnace blower, or with furnace-matching casings for evaporator and integral blower, Majestic offers a wide range of models in two price lines. Capacities run from 21,000 to 60,000 BTUH. There is also a complete attic air-cooled unit, and an all-electric remote heat pump for year-round comfort.

Write today for  
detailed specifications

The **Majestic** Co., Inc.

## Majestic Thulman Chimney

—another quality  
product  
for modern  
HOMES



A factory-made and complete metal chimney in a 7-inch flue size, ideal for venting any furnace, incinerator, or other appliance. Clearance from surrounding construction is built in! Listed by U.L. for all fuels. Light in weight, easy to install, it saves from 1/4 to 1/2 on chimney costs. Write today for free, illustrated Bulletin No. 5-H.

394 Erie St., Huntington, Indiana

One of the many attractive "Greta Lederer Homes" recently built in suburban Glencoe, Illinois.



## in the finest homes ... P-K<sup>®</sup> sheet metal fasteners!



In Chicagoland's swank North Shore suburban homes, heating and air conditioning contractors like Atomatic Inc., make P-K Type-A fasteners their first choice. The original self-tapping sheet metal screw, Parker-Kalon fasteners are famous for quality and uniformity—no off-center or burred slots, no under-sized or eccentric heads—they start right, drive right, help keep jobs on schedule. That's why leading Heating and Air Conditioning Contractors say ...  
*"If it's P-K . . . It's O-K!"*

*Contractor Stan Lundquist, Atomatic Inc., Chicago, makes final check of heating and air-conditioning installation. "Whatever the size or type of job—office building, factory, store, or fine home—we look to P-K Self-tapping Screws for their speed and dependability."*

# PARKER-KALON<sup>®</sup> fasteners

Sold Everywhere Through Leading Industrial Distributors

Factory: Clifton, New Jersey — Warehouses: Chicago, Illinois — Los Angeles, California

**PARKER-KALON DIVISION**, General American Transportation Corporation  
Manufacturers of Self-tapping Screws, Socket Screws, Screwnails, Masonry Nails,  
Wing Nuts and Thumb Screws.

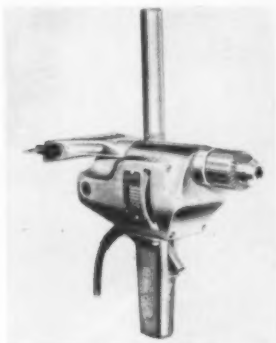
## equipment developments

(Continued)

creased depth for quick flame travel and fast ignition, the company states. Overhang prevents clogging. Elimination of spillage and recirculation of gases is said to eliminate need for inner doors on combustion chambers. Pilot flame is below burner, which is at bottom of tank.

### Portable Electric Drill

"SHORTY" MODEL 612 half-inch electric drill which delivers  $\frac{1}{2}$  hp and 8 ft lb of torque at chuck—Milwaukee Electric Tool Corp., Dept. AA, 5368 W. State St., Milwaukee 8, Wis. Unit weighs  $9\frac{1}{4}$  lb, measures



12 $\frac{1}{4}$  in. long. Power is supplied by 6 amp, 115-v a-c, d-c motor; spindle speed is 600 rpm. Unit contains sealed ball bearings, alloy steel gears and pinions. Drill is fan cooled, has dynamically balanced rotor, trigger switch with locking button, split handle design and built-in chuck key holder.

### Remote Condensing Units

AIR COOLED condensing unit in 2 and 3 hp models, designed for remote installation—Brunner Mfg. Co., Dept. AA, 1821 Broad St., Utica 1, N. Y. Units are said to operate efficiently with 120 F ambient air across the condenser, 1000 cfm condenser air per ton. Single phase units have motor protection on compressor and dual pressure control. Three phase units have magnetic starters and dual pressure control. Oversized condensers have tempered aluminum fins.

### Trigger Action C-Clamp

"CLAMPMASTER" C-CLAMP with ratchet screw which instantly positions clamp screw and releases it with trigger action—Grand Specialties Co., Dept. AA, 3101 W. Grand Ave., Chicago 22. Trigger action reduces time by eliminating tedious turning. Alloy steel construction is designed for increased strength. Throat depth is up to 6 in. on various models. Screw, handle

prefabricated fittings  
**SAVE MONEY**  
by  
**SAVING TIME**



# OHIO VALLEY

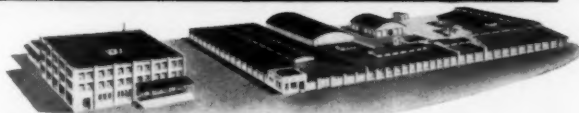
## Furnace Fittings

Your customers expect the best—in quality, workmanship, and COMFORT. And they want it at a reasonable price. See that they get all they expect, with precision-built Ohio Valley fittings—and save your own time, too, through speed and ease of installation.

**DO IT BETTER, FASTER—  
WITH OHIO VALLEY**

*Carried in Stock by Leading Wholesalers*

Catalog available... get it from us  
or from your wholesaler



**Ohio Valley Hardware Co., Inc.**

Manufacturing Division  
Evansville 2, Indiana



# NATIONAL LOCK Special Fasteners

save you cash  
on the line!

## THREE FASTENERS *specifically designed* FOR YOUR REQUIREMENTS



### PHILLIPS FINISHING HEAD SCREWS

This special one-piece fastener gives the appearance of a screw and separate finishing washer. Requires a single application. Saves time on the line . . . cuts fastener costs. Available as sheet metal screws, Sems, wood, machine and thread-cutting screws.



### PHILLIPS HEXAGON WASHER HEAD SCREWS

Head and washer are one piece. Eliminates separate flat washers. Provides greater production line efficiency. Hexagon head simplifies service in the field. Washer covers clearance holes . . . assures better seating. Now available in all threads and sizes.



### SPECIAL-PURPOSE HEXAGON POINTED BOLTS

New hexagon point allows bolt adjustment, even after head has been covered in assembly. Available in any head style . . . also as Sems with pre-assembled lock washers or stampings. Can be used as a thread cutting screw without damaging the point.

LOOK TO NATIONAL LOCK FOR THE FINEST  
IN STANDARD AND CUSTOM-BUILT HARDWARE  
Hinges • Catches • Pulls

Assembled Crating Bolts

Everything in appliance hardware



**NATIONAL LOCK COMPANY**

Rockford, Illinois

## equipment developments

(Continued)

and swivel are copper plated for protection against welding spatter and rust-proofed with baked enamel finish.

### Central Cooling Unit

"HIDE-AWAY" CENTRAL cooling unit for attic, basement, utility room or crawl space installation—*Burnham Corp., Dept. AA, Irvington, N.Y.* Models BAC-120, -180 and -250 are rated at 10,600, 15,500 and



20,700 Btuh cooling capacities, respectively. Unit is self-contained, requires 6 sq ft of floor space. Direct connected centrifugal fans are used for conditioned air circuit and for air-cooled condenser. Unit is said to remove 36 to 72 qt of water daily from conditioned air.

### Dry Air Filter

"ROLL-KLEEN" automatic dry air filter with glass fiber media which extends from clean media roll at top of unit, over filter face and onto used media roll at bottom—*Farr Co., Dept. AA, Box 45187, Airport Sta., Los Angeles 45.* Takeup roll automatically pulls clean media over entire filter face when dirt has accumulated to pre-selected density. Two maintenance lights tell when media is changing and when roll is exhausted. Units are in standard widths of 3, 4 and 5 ft, 5 to 15 ft high.

### Indoor Incinerator

LP GAS-FIRED incinerator which can be installed in basement, garage or utility room—*Queen Stove Works, Inc., Dept. AA, 505 Front St., Albert Lea, Minn.* Unit consumes wet garbage, bones, vacuum cleaner dust, etc. Foot pedal opens top leaving both hands free. Unit holds up to two bushels. It has handy ash drawer, stainless steel burner, cast iron burner



# NEW!

## NIAGARA RING AND CIRCLE SHEAR



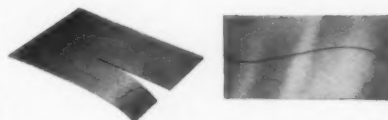
makes quick, easy work of cutting true circles

**Here's a fast, versatile and profitable performer!** Designed to provide the utmost in operating ease and cutting accuracy, this all-new Niagara Ring and Circle Shear No. 31-RC features a self-compensating circle arm which floats on guided ways to maintain true center automatically. Time-consuming adjustment for variations in thickness of material, overlap of cutters and diameter of circle is thereby eliminated.

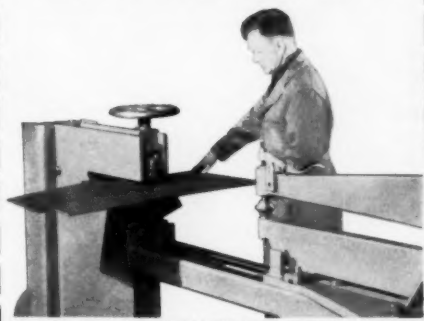
Set-up is simple: An adjusting crank and convenient scale enable quick positioning of the circle arm for cutting to various diameters. A quick-acting cam lever actuates the center clamp of the circle arm to hold varying thicknesses of material securely at all times.

Of sturdy, all-steel construction, this compact, modern machine is equipped with swing and slitting gages; high carbon, high chrome cutters; quiet operating, hobbed steel gears plus anti-friction thrust and bronze bushed bearings. With a capacity of 10-gage mild steel, it cuts both straight line work and irregular outlines as well as circles, circular holes and rings.

**GET THE FULL STORY** by writing for new, illustrated Bulletin 70 Supplement today, as well as literature on other Niagara Circle Shears, Ring and Circle Shears, Slitting Shears, Combination Shears and Flangers.



**CUTS STRAIGHT LINE WORK AND  
IRREGULAR OUTLINES, TOO!**



# NIAGARA

**NIAGARA MACHINE & TOOL WORKS, BUFFALO 11, N. Y.**

DISTRICT OFFICES: Buffalo • Cleveland • Detroit • New York • Philadelphia

Dealers in principal U.S. cities and major foreign countries

America's Most Complete Line of Presses, Shears, Press Brakes, Other Machines and Tools for Plate and Sheet Metal Work

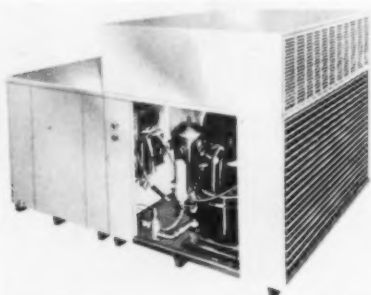
## equipment developments

(Continued)

shield, 16 ga combustion chamber and 1 in. glass fiber insulation throughout. Unit measures  $36 \times 18 \times 24$  in. Flue diameter is 6 in.

### Air Cooled Cooling Unit

"STOWAWAY" MODEL self-contained central cooling unit now in 5 ton size, with evaporator and condenser section ready for field connection—*Lennox Industries, Inc., Dept. AA, 200 S. 12th Ave., Marshalltown, Ia.*



Condenser air is pulled through condenser coil at front of the unit and exhausted out the top through sound-proof discharge hood or length of duct. Condenser coil has approximately 2 sq ft of net face area per ton of cooling. Condenser face can be installed flush with exterior wall with only one wall opening. Evaporator section has acoustical insulation; cooling coil is in lower half of evaporator section, according to the manufacturer.

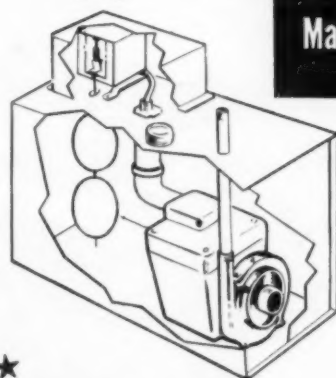
### Hip Roof Ventilator

SERIES 50 low silhouette hip roof ventilator in 0.025 in. aluminum or 26 ga galvanized steel—*Leslie Welding Co., Inc., Dept. AA, 2943 W. Carroll Ave., Chicago 12.* Unit has baffle under rear of the hood and weather flange around top of stack to keep out rain and snow. Four in. flange permits weatherproof installation and 8 in. diameter stack accommodates round duct for kitchen fan application. Unit provides 41 sq in. free area and is screened against insects and birds.

### Fume Ducts

CORROSION-RESISTANT polyester glass fume ducts designed to resist corrosion from acids, hypochloride salts, weak alkalies, and organic solvents—*Haveg Industries, Inc., Dept. AA, 900 Greenbank Rd., Wilmington, Del.* One-piece molded ducts are 15 in. in diameter. Standard sizes to 24 in. in rectangular and round ducts are available; special sizes and shapes are made to order, the company states.

# Little Giant



### ★ CONDENSATE UNIT For Refrigerated Units!

- Hermetically sealed Little Giant Recirculating Pump for trouble-free self-lubricating operation.
- Positive displacement switch with float control, double pole switch for complete circuit break plus a three-conductor cord available.
- Sturdy metal tank corrosion resistant.
- Small and Compact.
- Quiet in operation.
- Completely automatic.

### PUMPS FOR ANY AIR CONDITIONING APPLICATION



### ★ VAPORIZER For Industrial and Commercial Evaporative Coolers

- Little Giant Vaporizer Pump, hermetically sealed in oil, self-lubricating.
- Die-Cast aluminum impeller saturates evaporator pads with fine, vapor-like spray for greater temperature drop.
- Small and compact.
- Economical to operate.
- Available for 110 volt 60 cycle or 220 volt single phase current.
- No expensive piping necessary.



Write for free catalog and price list today!

## Little Giant PUMP COMPANY

Division of Little Giant Vaporizer Company, Inc.

5101 Classen Blvd., Oklahoma City 18, Okla.



# PERIMETER SYSTEM AIR HANDLING ...AT ITS BEST!



## U. S. No. 1000 Super Base Diffuser

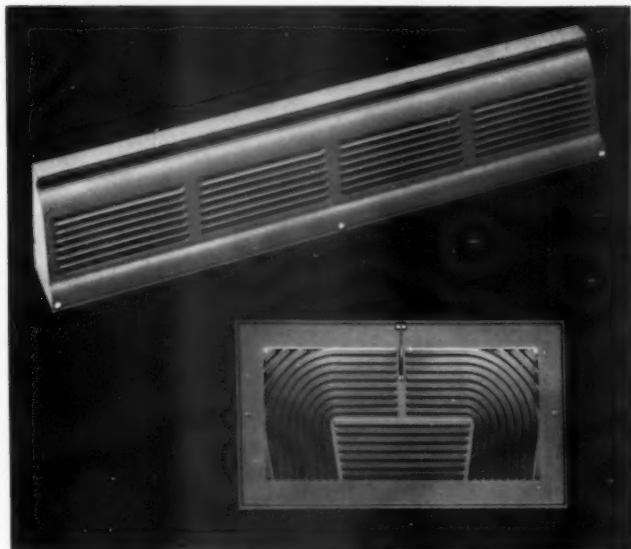
You FORGE the way in your area for QUALITY PERIMETER INSTALLATIONS when You Standardize on this U.S. No. 1000 SUPER BASE DIFFUSER. It's ENGINEERED for HIGHEST EFFICIENCY, BEAUTY, MINIMUM RESISTANCE, QUIETEST AIR DIFFUSION. Home-Owners ADMIRE its INCONSPICUOUS BEAUTY. EASY Installation MINIMIZES COST. Adjustable Bottom may be Set to fit any Connection.

## U. S. No. 2000 PERIMETER Base Intake

A PERFECT TEAMMATE for The No. 1000 SURELY IS THIS MOST EFFICIENT No. 2000 PERIMETER BASE INTAKE. Housewives like its NON-VISION, EASY to CLEAN DESIGN. Here, again, you save on installation labor costs.

## U. S. No. 105 A.C. Sidewall Diffuser

The MOST POWERFUL of PERIMETER SIDEWALL DIFFUSERS. It PROVIDES 180° "SUN-BURST" DIFFUSION with UNBELIEVABLE MINIMUM RESISTANCE. Complete with Balancing Set-Lock. Made in 3 sizes to meet every need. ITS PERFORMANCE IS TERRIFIC — PERFECT BEYOND IMAGINATION.



ASK YOUR U.S. JOBBER FOR COMPLETE DETAILS—SEND FOR LATEST CATALOG



**UNITED STATES REGISTER COMPANY**

BATTLE CREEK, MICHIGAN

MINNEAPOLIS • KANSAS CITY • ALBANY

SOLD BY LEADING JOBBERS FROM COAST TO COAST

## ***new literature . . .***

### **ASHAE Guide**

THE HEATING VENTILATING AND AIR CONDITIONING Guide 1957, 35th edition (\$12.00) features an enlarged technical data section of over 1250 pages, representing an increase of more than 70 pages to accommodate new and revised information. Chapter 9, Heat Transmission Coefficients of Building Materials, contains a new set of U-value tables covering many more constructions than in previous editions. Prepared by the ASHAE technical advisory committee on insulation, each table contains an illustration with accompanying calculation of one U-value and an explanation of how to convert U-values to changes in constructions and materials. Other revisions and additions include: 1) a rewritten chapter, with new charts and tables, covering methods of applying sound control principles and a typical example of their use; 2) addition of simplified design data for forced warm air systems; 3) an enlarged discussion of corrosion causes and prevention; and 4) a revised reference list of existing codes and standards.

The material is grouped into seven sections: Fundamentals; Human Reactions; Heating and Cooling Loads; Combustion and Consumption of Fuels; Systems and Equipment; Special Systems; and Instru-

ments and Codes. Included is a 24 × 32 in. psychrometric chart—*American Society of Heating and Air-Conditioning Engineers, Dept. AA, 62 Worth St., New York 13.*

### **Laminating Plastic to Metal Surfaces**

THE LAMINATING of textured vinyl plastic to ducts and grilles or other metal products is described in a four page brochure that contains samples of six colors and three textures. Flat metal sheets or continuous coils thus laminated can be put through subsequent metal working processes without damaging color or texture of the vinyl, according to the company—*North East Laminates, Inc., Dept. AA, 51 Osgood St., Methuen, Mass.*

### **Packaged Cooling Units**

CONSUMER BROCHURE describes 2 and 3½ hp air cooled packaged units which may be used with existing warm air heating systems or installed independently. Advantages of summer air conditioning are outlined such as more restful sleep, better health, more leisure time, less housework, etc. Illustrations include drawings of typical residential and small commercial applications—*American-Standard Air Conditioning Div., Dept. AA, 40 W. 40th St., New York 18.*

**In the New York market  
...where price is  
an important factor ...  
and rigid building  
codes exist ...  
Empire Ventilators  
outsell all others.**



Sold thru  
leading  
wholesalers.  
See your  
jobber.

**Empire Ventilation Equipt. Co.**

**35-39 Vernon Boulevard  
Long Island City 6, N. Y.**





MODEL 14-U-10

# PEXTO

## POWER SQUARING SHEAR

New features . . . superb performance . . . quality engineered with self compensating holdown for fast, accurate, clean-cut, safe shearing of light gauge sheet steel, stainless, plastic, fibreboard, etc. Included in the design are all refinements of modern gauging, maximum cutting life of each of 4 edges of the knives, single or repeat clutch control, protection against scrap damage and complete safety guards. New Bulletin No. 57 on request.

### POWER RING AND CIRCLE SHEAR

Improved machine cuts discs from square sheet metal, fibreboard, plastic blanks. Also cuts on inside of sheet for rings and gaskets.

Also complete line of machines and tools for sheet metal work.



THE PECK, STOW & WILCOX COMPANY, SINCE 1785, SOUTHTON, CONNECTICUT, U.S.A.

# PRESTO CHANGO



Change  
to

## GALVAN ELBOWS

It's Magical -  
The Way They

**G-L-I-D-E**  
TOGETHER



### new literature

(Continued)

#### Edging Round Duct in One Operation

ILLUSTRATED BULLETIN 75C SUPPLEMENT introduces offset rolls and gage that reduce industrial round duct and elbow edging to a single operation. Available for both hand and power rotary combination machines, they cut duct joining time in half, according to the company. The bulletin graphically illustrates the method of forming an offset flange on one edge of each segment. The plain edge of the connecting piece slides into the flange and the joint is ready for secondary fastening—*Niagara Machine & Tool Works, Dept. AA, 683 Northland Ave., Buffalo 11.*

#### Single and Polyphase Motors

"TRI/CLAD 55" motors for single phase application are described in bulletin GEA-6240A (eight pages, illustrated). Dimension data for estimating is given on dripproof, resilient-base, and totally enclosed fan cooled motors. Rating and type charts offer aid on applications. Also available is bulletin GEC-1420 (four pages) containing application data on dripproof and enclosed polyphase induction motors. Cutaway drawings point out construction features—*General Electric Co., Dept. AA, Schenectady 5, N. Y.*

#### High Efficiency Air Filters

"HIGH EFFICIENCY AIR FILTRATION" (bulletin 120, four pages) shows comparable efficiencies, based on three standard tests, of various types of filters; defines high efficiency filtration; and gives basic information on filter selection. Also described is the company's absolute filter, said to be 99.95 percent efficient on 0.3 micron particles. Listed are typical applications and users of high efficiency filters—*Cambridge Filter Corp., Dept. AA, 738 E. Erie Blvd., Syracuse 3, N. Y.*

#### Water Conditioner for Cooling System

WATER CONDITIONER designed to eliminate and prevent scale and corrosion in cooling systems by imparting added energy to the atoms of the water solution is described in a four page illustrated circular. The conditioner is available in 13 sizes handling from 61½ to 1760 gpm—*Packard Water Conditioner Div., Inc., Packard Mfg. Co., Dept. AA, 1720 Prudential Bldg., Jacksonville 7, Fla.*

#### Heating and Cooling Controls

TWO CATALOGS cover 1) heating and air conditioning controls and 2) cooling and air conditioning controls. Featured in both catalogs is the company's "Rimset"



*"Let's be  
Perfectly Frank"*

## ROUND OAK

heating and  
air conditioning

**Sells Quality—not Guff!**

We at Round Oak have always felt that our customers are our best salesmen. They don't have to rely on frills . . . or promises . . . they've seen with their own eyes!

Round Oak heating and air conditioning has always been engineered and manufactured with the customer in mind. Sell him once—and that's only the beginning of the feeling he has for you, and for the product.

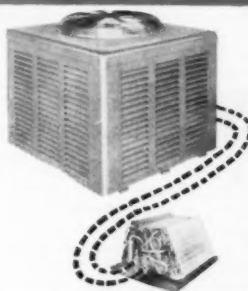
A Round Oak customer today is your friend tomorrow . . . and for always.



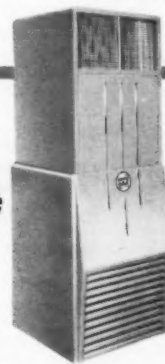
BEAUTIFUL "C" SERIES HEATING . . . GAS OR OIL FIRED



BASEMENT MODEL LO BOY HEATING  
. . . GAS OR OIL FIRED



AIR-COOLED "CLIMA-TWIN-AIRE" REMOTE CONDENSER AND EVAPORATOR  
PACKAGES . . . 2, 3, AND 5 H.P. . . . NEW TWO-TONE "HI BOY" PACKAGE



**ROUND OAK CO., INC.**  
DOWAGIAC, MICHIGAN

ROUND OAK CO., INC.  
Dowagiac, Michigan

Gentlemen: Please rush me full details of the Round Oak heating and air conditioning line.

Name \_\_\_\_\_  
Firm \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_



**SHUR-FLO**  
draft inducer to  
correct for lack  
of natural draft.

## DRAFT CONTROL PRODUCTS

### Automatic Draft Controls

When it comes time to recommend, specify, buy or install draft control equipment for small space heaters or your biggest commercial installation, look first to Walker, world's largest factory devoted exclusively to the manufacture of automatic draft controls. Over 25,000,000 now sold for coal, oil, and gas prove Walker Controls are the best you can buy for quality, dependability, and fuel-saving performance.



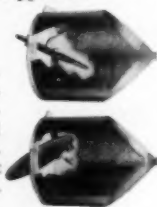
### WALKER A Complete Line of Draft Control Products

Walker Draft Controls, available in 3" to 48" sizes, help keep chimneys dry, stop pulsation and smoking, eliminate soot and odors; give trouble-free performance even under most adverse conditions. Walker Controls are made with perfect balance. Knife-edge bearings are incorporated into the inner side of sturdy frame. Underwriter Approved.

### WALKER

#### BBG DOUBLE SWING CONTROL

Walker's BBG Double Swing Control regulates updraft, dissipates downdraft in gas-fired equipment. Unique relief bar arrangement for flawless performance. Stainless steel knife-edge bearings. Corrosion resistant. Long, heavy gauge collar holds the draft control safely out of the flue gas stream.



### WALKER

#### VENTURI-TOP CHIMNEY TOP

For heating (gas, oil, or coal) and ventilating. Directional vane keeps throat facing wind. Sloping-throat prevents back drafts, intensifies air flow over chimney opening for maximum draft effectiveness. Unit rotates on friction-free, hardened-steel ball bearing.



### WALKER 30 Years of Draft Control Experience!

Eastern Exposition of Oil Heat and Cooling  
Hotel Statler, Boston, Mass., June 4, 5, 6, and 7.

### MAIL COUPON FOR COMPLETE DETAILS TODAY!

WALKER MFG. & SALES CORP. 1730 Penn Street, St. Joseph, Mo.

Please rush me information on the Walker items checked.

- ☐ Automatic Draft Regulators for small installations
- ☐ Industrial draft regulators for schools, buildings, plants
- ☐ Walker SHUR-FLO Draft Inducer
- ☐ Royal Purple Draft Controls for Home Heating
- ☐ Venturi Top Chimney Cap

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_

## new literature

(Continued)

thermostat, which is available for heating only, cooling only, or combination heating-cooling. Shown for the first time in the heating catalog is Series 680 stack control with automatic recycling. Specify bulletin 1508 for heating, bulletin 1487 for cooling—Penn Controls, Inc., Dept. AA, Goshen, Ind.

## Heating and Cooling Supplies

EIGHTY-FOUR PAGE ILLUSTRATED CATALOG describes some 200 products available to heating and cooling dealers. Included are specifications for furnaces, gas and oil burners, chimneys, incinerators, unit heaters, fans, ventilators, air filters, registers and grilles, humidifiers, insulation, gutters, conductor pipe, duct, furnace fittings, controls, hand tools, etc.—A. G. Brauer Supply Co., Dept. AA, 2100 Washington Ave., St. Louis 3, Mo.

## Evaporative Air Cooling

EVAPORATIVE COOLING can provide effective and inexpensive air cooling in certain climatic areas, but only with proper design and well-defined maintenance procedures, according to a report of Navy research contained in an illustrated brochure titled "The Military Application of Evaporative Cooling." The report contains recommendations for effective, low cost evaporative systems based on results of field studies and in-service tests of climatic requirements, water requirements, sizing equipment, equipment selection, and maintenance procedures. Designated PB 111712, the booklet is 29 pages long, is priced at 75 cents—Office of Technical Services, U. S. Department of Commerce, Washington 25.

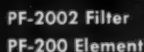
## Heating and Cooling Equipment

CATALOG INSERTS for comb type binder are supplied together with a plastic tool to facilitate insertion. Inserts include brochures on summer and winter air conditioning units as well as "Thulman" chimneys and fireplaces. Also included is a 24 page insert listing and illustrating the various types of advertising aids the company has available. Price lists cover heating and cooling units as well as pipe and fittings for warm air heating and summer air conditioning systems—The Majestic Co., Inc., Dept. AA, 733 Erie St., Huntington, Ind.

## Sound Enclosures and Barriers

CIRCULAR explains how to solve noise problems in industry through the use of "Soundmetal" panels in portable barriers, partial enclosures, complete enclosures,





### CROSS REFERENCE CHART

[illegible]

**PUROLATOR REFILL FEATURES** . . . 100% DEGREE FILTRATION • ONE SIZE FOR ANY CAPACITY • U.S. APPROVED 100 C.P.M. • FIVE TIMES MORE FILTERING SURFACE AREA

This handy guide shows you, instantly, the filter refills which may be used, interchangeably, in all leading filter units.

## Filtration For Every Known Fluid

**PUROLATOR**  
PRODUCTS, INC.

Rahway, New Jersey and Toronto, Ontario, Canada

# Reduce your inventory problems...

**THESE 4 PUROLATOR REFILLS  
SERVICE 98% OF ALL  
OIL BURNER FILTER INSTALLATIONS**

With the addition of three new sizes, the famous PurOlator line of Micronic® filter refills (including gaskets) will now fit 98% of all oil burner installations.

In addition to supplying most requests from a minimum stock of four sizes, you can give your customers the five outstanding benefits of PurOlator Micronic filtration—*no matter what filter is installed on their job.*

1. Water and acid resistant element.
2. Uniform density filtering to .0005".
3. No channeling or "soft" spots.
4. Will not shrink, distort, stretch, flake or deteriorate.
5. A guaranteed filtering capacity of over 100 gallons per hour U.I. approved.

MAIL COUPON FOR FREE CROSS-REFERENCE CHART.

**Dept. OB5-1030, Purolator Products Co., Inc.  
Rahway, New Jersey**

Please send me \_\_\_\_\_ copies of your Oil Burner Filter Element Cross-Reference Chart.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

## new literature

(Continued)

and rooms. Construction details of the panels are illustrated and tables present sound characteristics—*Koppers Co., Inc., Metal Products Div., Dept. AA, 200 Scott St., Baltimore 3.*

### Weather Data

BULLETIN entitled "Weather Trends" features a weather forecast for the current month with general estimates for the following two months. Climatological data and forecast for key cities are presented in tabular form. Maps of the United States and part of Canada, divided into seven areas, show estimated deviation from normal monthly temperature as well as estimated percentage of normal monthly precipitation—*Westinghouse Electric Corp., Air Conditioning Div., Dept. AA, Staunton, Va.*

### Air Conditioning Noise Control

NOISE CONTROL IN AIR CONDITIONING systems is discussed in a four page illustrated circular. "Aircostat" sound traps for both high and low velocity systems are described and drawings show principles of operation—*Koppers Co., Inc., Metal Products Div., Dept. AA, 200 Scott St., Baltimore 3.*

### Gas Unit Heaters

POCKET SIZE BULLETIN SA-571 presents data on gas unit heaters. Entitled "Application of Gas Unit Heating," the bulletin is designed to aid in determining the situations in which this system of heating can successfully be applied and to give basic information on the selection and installation of the proper equipment. Some of the points covered are when and where to use gas unit heaters and things to remember about heater location, thermostat location and venting—*Reznor Mfg. Co., Dept. AA, Mercer, Pa.*

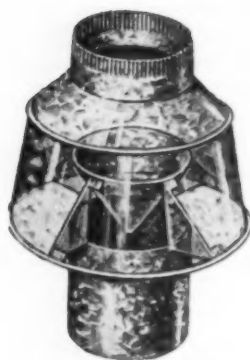
### Treatment of Water in Cooling Systems

LITERATURE covers the treatment of water in summer air conditioning systems. Subjects discussed include treatment of the water to control corrosion of equipment that comes in contact with water and ways to minimize scale formation in cooling towers and evaporative condensers. Included is a description of the company's water treatment service plan—*Water Service Laboratories, Inc., Dept. AA, 423 W. 126th St., New York.*

### Drill Presses

ILLUSTRATED BULLETIN lists specifications for floor and bench, single and multiple spindle drill presses in sev-

## Specify EXCELSIOR



No. 753 Vertical Diverter  
A.G.A. Listed



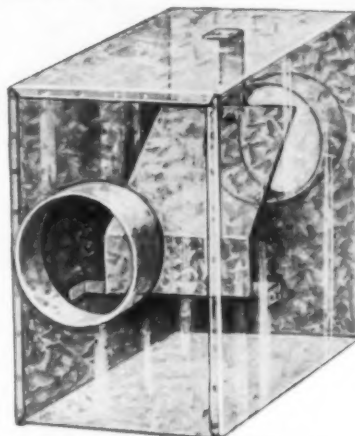
### DIVERTERS

#### for Gas Heat Installations

These Excelsior diverters will meet your requirements for any gas heat installation, available in size 3" to 10". The A.G.A. mark is embossed on each diverter. Sold by leading wholesalers everywhere.

#### NEW CATALOG NO. 10A

New catalog gives details and prices on Excelsior complete line of Standardized Pipe, Ducts, and Fittings sent on request.



No. 754 Horizontal Box Diverter  
A.G.A. Listed

## THE EXCELSIOR STEEL FURNACE COMPANY

546 W. Washington Blvd.

FRanklin 2-8145

Chicago 6, Illinois

DIVISIONS

#### EXCELSIOR HEATING & SUPPLY DIV.

The Excelsior Steel Furnace Company  
879 Hersey Ave., St. Paul 14, Minn.  
Telephone: Midway 6-7255

#### EXCELSIOR HEATING SUPPLY DIV.

The Excelsior Steel Furnace Company  
2 East 3rd St., Kansas City 6, Mo.  
Telephone: Victor 2-3715



## new literature

(Continued)

eral basic sizes. Included are a 20 in. unit engineered for production tooling; a 17 in. unit also designed for heavy duty production work; a 15 in. model for shop or production work; a 14 in. "Super Hi Drill" press for high speed, precision small-hole drilling; and a 14 in. utility drill press—*Delta Power Tool Div., Dept. AA, Rockwell Mfg. Co., 470 N. Lexington Ave., Pittsburgh 8.*

### Plastic and Coated Air Moving Units

ILLUSTRATED FOUR PAGE FOLDER, "Exhaust Fumes from Corrosive Chemicals," deals with the problem of corrosive fumes and atmospheres. Air moving equipment featured in the pamphlet includes centrifugal and axial type plastic fans, rubber lined and coated centrifugal steel blowers, plastic or rubber lined ejector units, and coated axial fans. Points covered include capabilities of the units, details of construction and operating features—*Heil Process Equipment Corp., Dept. AA, 12901 Elmwood Ave., Cleveland 11.*

### V-Belt Drives

TIPS ON HOW TO OBTAIN longer V-belt life and increase drive efficiency are contained in a 12 page bulletin designated 20X6234C. The bulletin describes various types of V-belts and tells how to select and match them. It lists seven steps for the correct installation of belts. Illustrated are eight most common causes of V-belt destruction, including snub break, slip burn, base cracking, abrasion, oil deterioration, rupture, ply separation and worn sides—*Allis-Chalmers Mfg. Co., Dept. AA, P. O. Box 512, Milwaukee 1, Wis.*

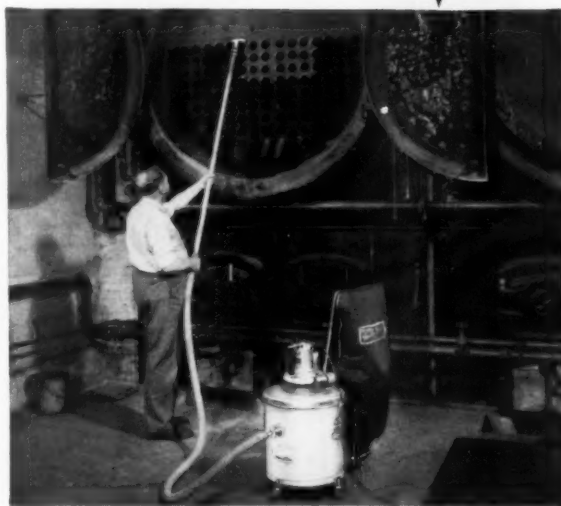
### Fans for Cooling Towers

ILLUSTRATED circular presents data on "Aeromaster" fans for cooling towers featuring blades made from corrosion resistant, silicon-magnesium aluminum alloys. Made of extruded metal, the blades are hollow and light in weight. They are sealed by aluminum welding—*Koppers Co., Inc., Metal Products Div., Dept. AA, 200 Scott St., Baltimore 3.*

### Specialty Steels

PRODUCT AND WAREHOUSE catalog (232 pages, spiral bound) describes over 700 steel products available from stock at warehouses located throughout the country. Send request on company letterhead—*Engineering Service Dept., Crucible Steel Co. of America, Dept. AA, Box 1558, Pittsburgh 30.*

every  
furnace,  
boiler,  
and  
air  
conditioning  
cleaning  
problem  
answered  
by



This man could have been using inadequate equipment, but he's not. His boss knows that PREMIER's complete line of vacuums and tools is designed to satisfy the needs of any cleaning operation efficiently and economically.

Why not let PREMIER help you in your job? Send for **free** details today!

Gordon L. Bowman, General Sales Manager  
The PREMIER Company, Dept. 404  
755 Woodlawn Ave., St. Paul 1, Minnesota • MIDway 9-7002  
35 Gerrard St. West, Toronto 2, Canada

Please rush me free details on PREMIER furnace, boiler, and air conditioning cleaning equipment and FREE information on how I can cut maintenance costs by choosing the right machine for my job!

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_



## BIG BLOWERS ARE BIG BUSINESS WITH PEERLESS

**QUIET! TROUBLE-FREE! DEPENDABLE!  
HEAVY DUTY! GUARANTEED!**

Versatility in size, application, and engineering has always been a Peerless strong point. Peerless builds its own motors and matches them to the specified blower requirements. Peerless blower frames and housings are usually heavier than any competitive products. Result—a quiet, vibration-free unit.

These are not "off-the-shelf" units, but built to customer rotation and discharge specifications. Each one receives 100% inspection before it leaves the Peerless factory. Each unit is built to NAFM standards. Motors are built to NEMA standards. Each unit is ready for operation when received at the installation site.



Write Today for Bulletins SDA-220, SDA-200 and SDA-160  
A COMPLETE LINE OF AIR MOVING EQUIPMENT



Charter Member of The Air Moving and  
Conditioning Association, Inc.

**Peerless  
Electric**

FAN AND BLOWER DIVISION

**THE Peerless-Electric<sup>®</sup> COMPANY**

FANS • BLOWERS • MOTORS • ELECTRONIC EQUIPMENT

1403 W. MARKET ST. • WARREN, OHIO

## *we hear that...*

► THE AMERICAN-STANDARD AIR CONDITIONING DIV. has developed a "Home Comfort Payment Plan" designed to enable dealers to sell summer, winter and year 'round air conditioning on a "no money down, up to 36 months to pay" basis. In presenting the plan at recent distributor meetings, Henry Rossell, sales manager for the division, said, "The emphasis on time payment selling by major competitors for the consumer dollar in the automotive and appliance fields makes it essential for the dealer in residential heating and air conditioning modernization to also develop an easy-terms selling program of his own."

► A "TRAVELING SERVICE SCHOOL" to supplement its annual service school program has been set up by Orr & Sembower, Inc. Theodore Schladitz, previously manager of the service department, has been named to head the new operation. During the year he will visit company representatives on a regular schedule to bring them the latest information and instructions from the company's engineering and service departments.

► WORTHINGTON CORP. recently launched an intensive advertising drive to promote its residential and commercial air conditioning equipment. A double page spread in Life magazine marked the opening of the drive. Key figure in the promotion is the "Climate Man," a specially trained dealer-representative who can provide detailed plans and recommendations for various types of heating and cooling installations.

► HOMER F. BRUNDAGE has been named to the newly created post of chairman of the board of directors of the Brundage Co. Ward Brundage, formerly vice president and general manager, has been named president, while J. E. Brundage, formerly secretary-treasurer, became vice president and secretary.

► BORG-WARNER CORP. plans to invest approximately \$26,000,000 in new plants and modern equipment this year, according to Roy C. Ingersoll, chairman of the board.

► ARNO ADHESIVES TAPES, INC. recently moved into its new plant in Michigan City, Ind. Now being produced at the new plant are cloth backed adhesive tapes for sealing heating and air conditioning ducts and insulating materials used with such ducts.

► CRUCIBLE STEEL CO. of America recently held open house to celebrate the completion of its specialty steel warehouse and sales office located at 6033 E. Bandini Blvd., Los Angeles. The two story building is sheathed with the company's "Rezistal Grade No.



202" stainless steel sheets. The company also recently celebrated the official opening of a new sales office and warehouse building which will serve Denver and surrounding areas. The new Denver warehouse more than doubles the capacity of the previous facility.

► **TUCK-AIRE FURNACE CO.** has adopted a new trade mark to identify the company's products, including the firm's "Atlas" and "Western" furnace lines. The change follows an earlier change in the company's name. The firm previously was known as International Sales Co. The new trade mark is a flat oval with a center panel featuring the words "Tuck-Aire."

► **A NEW ORGANIZATION**, Copy Lancers, located at 225 W. 12th St., New York City, has been formed to provide the heating and cooling industry with an advertising and sales promotion service. Services offered include preparing brochures, booklets, dealer kits, catalogs, sales letters, specification sheets and point-of-sale materials.

► **JOHN WOOD CO.** has purchased a 16 acre tract of land in Florham Park, N. J. to provide for future expansion of its engineering and research division.



**NEW HEADQUARTERS BUILDING** of American Coils Co. contains 63,000 sq ft of office and manufacturing space. In this view, employees' lunch room and engineering laboratory are at left, general offices in middle and lobby, main entrance and executive offices at right

► **AMERICAN COILS CO.** has moved its manufacturing and executive headquarters from Newark, N. J. to Farmingdale, N. J. In designing the new plant — a single story building located on an 11 acre site — company officials gave particular attention to facilitating the flow of raw materials and components through all stages of the manufacturing and assembly processes. The design of the building also provides for maximum future expansion. Packaged water-to-air heat pumps are used to provide both heating and cooling. The company reports that daily production capacity has been substantially increased over old levels due to the ease of materials handling plus adequate space and a flexible power distribution system.

*Now Is the Time to Stock*

**STANDARDIZED**



**Air Conditioning and Heating  
Pre-Fabricated**

**DUCT and FITTINGS**

**MAXWELL STEEL COMPANY**

**P.O. DRAWER 230**

**FORT WORTH 1, TEXAS**



Write for NEW CATALOG today

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

Purchasing Agent \_\_\_\_\_



VEARL J. HEINIS (center), vice president and general manager of the Home Products Div., Rheem Mfg. Co., discusses plans for his European trip with A. L. Walker (left), Rheem president, and Mario Capelli, vice president in charge of Rheem International

► VEARL J. HEINIS, vice president and general manager of the Home Products Div. of Rheem Mfg. Co., has been given the Bonelli Award by the unanimous vote of the Rheem executive committee. The award, providing an all-expense four weeks trip to Europe for Mr. and Mrs. Heinis, is made annually by Francesco Bonelli, president of the Rheem affiliate in Italy.

to the Rheem executive selected as having made outstanding contributions to the company's progress during the past year.

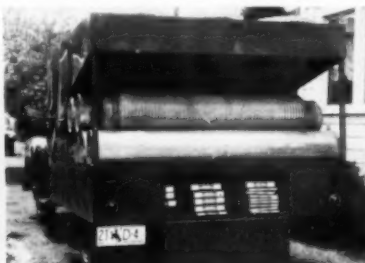
► RALPH O. HARDESTY, Seattle manufacturers' representative, has joined with John D. Favero, formerly manager of West Coast Heating Supply, Seattle, to form a new company—Hardesty-Favero & Co., Inc. With offices at 1731 First Ave., S., Seattle, the firm will give sales coverage to the entire Pacific Northwest territory. Present lines carried include warm air furnaces, pipe, fittings, registers, furnace filters, etc.

► TWENTY-EIGHT cooling and heating men representing the greater Los Angeles area recently made a two-day visit to the Dayton plant of the Airtemp Div., Chrysler Corp. Headed by Glenn A. Ashburn, president of Ashburn Supply Co., Culver City distributor and trip sponsor, the party included 20 dealers, seven representatives of the Ashburn firm, and E. D. Dickson, Airtemp West Coast regional manager.

► DAVID LEVOW, after 52 years in Manhattan, is moving to larger quarters at 698 Hart St., Brooklyn 21. The new building, containing almost double the amount of operating space, provides for expansion of receiving and shipping facilities, increased stock and larger offices.



2 Cubic Yards is a normal load for the Patented Dirt collector. WET GROUND or SNOW does not cause suspended work. All of the surface of each bag is filter area.



Two thirds of the time required for setting up to clean a job is saved by the convenient space arrangement for carrying ample metal and rubber hose and necessary accessories. The



springbinder shown at left above eliminates the possibility of losing pipe. Rear storage chamber will store 24 2 inch filters.

# PRINGLE POWER VACUUM



Connections from the cleaner to the unit to be cleaned are simplified by the SWIVEL ELBOW and greater safety is obvious by not backing into jobs.



Metal pipe, flexible hose and all necessary accessories give hundreds of jobs more service . . . every maintenance item is substantially reduced.

Please write today  
for literature  
to

**R. A. PRINGLE  
and SON**

**508 CATHERINE STREET  
Walla Walla Washington**

## we hear that

(Continued)

► R. F. GOUGHNOUR, formerly with Inland Heater Co., has formed the R. F. Goughnour Co. and is now operating as a manufacturers' representative with offices at 6945 Oliver Ave., S., Minneapolis. The Goughnour company will handle commercial warm air furnaces for the Tjernlund Mfg. Co. in the states of Wisconsin, Iowa, Nebraska and parts of Minnesota and gas unit heaters for Utility Appliance Corp. in approximately the same territory.

► THE HYDRALINE DIV. of Borg-Warner Corp. has recently been consolidated with the firm's York Div. First sales meeting following the consolidation of the two divisions was held at York, Pa.

► THE FIRST SERVICE COURSE offered at the new commercial air conditioning training school of American Blower Div., American-Standard was filled by representatives of Hajoca Corp., eastern heating and cooling distributor. The new school, which is located in the division's main plant at Dearborn, Mich., is open to employees of any heating, ventilating or air conditioning distributor or dealer as well as to division representatives. The program includes a series of five-day application courses in addition to the service

courses. Laboratory equipment includes four 3 ton packaged conditioners, three 5 ton units and two rated at 10 tons. A work table containing 10 acetylene type torches for soldering, brazing and other service functions is located in the center of the laboratory.



FRED S. BOONE, president, Hall-Neal Furnace Co., points out features of a "Victor" furnace to Don Anglin, Crawfordsville, Ind. dealer

► NEARLY 200 DEALERS from 17 states attended the annual "Victor" dealers' sales conference held recently by the Hall-Neal Furnace Co. Main speaker was C. W. Nessell of the National Warm Air Heating and Air Conditioning Association. Mr. Nessell discussed "The Value of a Good Installation" and explained how good



## High Speed Sheet Slitter!

FOR 24 GAUGE TO  
10 GAUGE SHEETS  
OR COIL STOCK

- ADJUSTABLE GUIDE RAIL GUIDES SHEET THROUGH SLITTER. DEPTH OF THROAT IS 25".
- GUIDE RAIL CAN BE SET TO SLIT 1/2" STRIP.
- "DIAMOND HARD" SLITTING WHEEL IS READILY REMOVED TO RESHARPEN OR REPLACE.
- VERTICAL ADJUSTMENT SCREWS RAISE OR LOWER MACHINE TO HEIGHT OF YOUR BENCH—32" to 36".

THE **Flagler** CORP.

19325 Filer Ave.

Detroit 34, Mich.

Phone: Twinbrook 3-3161



QUICKLY  
RETURNS  
ITS  
COST.

SEND  
FOR THE  
FACTS!

DISTRIBUTED IN  
CANADA BY  
**McDERMID BROS.**  
TORONTO

# Better COOLERS for the BIGGEST MARKET



**ALTON**

*airwasher type* **EVAPORATIVE  
COOLER**

Investigate the huge untapped source of air conditioning sales. The NEW market of plants, factories, and laundries, where high cost refrigeration is not warranted, is ready for low cost ALTON EVAPORATIVE COOLERS. The Alton is engineered for maximum circulation of cool fresh air . . . is built to last . . . operates very economically . . . is effective in all climates. Seize your ALTON sales' opportunities today.

\***Latex-Coated Filters** (Alton Exclusive) deliver cleaner, cool air faster, more steadily.

\***Aquasprae Unit** wets all the filtermat surface effectively.

\***Squirrel Cage Blower** distributes maximum quantities of fresh air uniformly.

WRITE US FOR THE FACTS  
DEALER TERRITORIES AVAILABLE

**ALTON MANUFACTURING COMPANY**  
1112 Ross Avenue, Dallas, Texas

NAME .....

BUSINESS NAME .....

ADDRESS .....

CITY .....

STATE .....

**we hear that**

(Continued)

installations bring about repeat business. Tom Williams, sales manager for the Hall-Neal company, described the details of the firm's third "Spring Sales Round-Up" contest for dealers.

► **TWENTY-FOUR STAINLESS STEEL** telephone booths have been set up in Bryant Park, New York City by the New York Telephone Co. Sheet and strip steel used in fabrication of the booths was supplied by Republic Steel Corp.

► **WESTINGHOUSE ELECTRIC CORP.** has established three new marketing organizations through which it will be able to offer effective support to dealer efforts at the local level. Sales specialists will assist dealers in planning local advertising and promotion; help them with financing problems; give advice on many sales producing and profit producing projects; and help in training salesmen.

► **LENNOX INDUSTRIES, INC.** recently completed the building of a two-classroom school adjacent to its Des Moines, Ia. plant. The school, which cost \$50,000, is being used by primary and secondary classes to provide the manufacturer with an on-the-spot test facility for its new "Comfort Curtain" heating and ventilating equipment.

► **EIGHTEEN** heating and cooling men from West Germany recently visited the Armstrong Furnace Co.'s plant at Columbus during the course of a three week, 10 city study-tour. The visitors saw a movie depicting the history of the company, its products and their development, following which they toured production and assembly facilities.

► **WHIRLPOOL-SEEGER CORP.** is conducting a "Sales Maker" contest for dealers handling "RCA" room air conditioners. According to J. B. Ogden, general manager for "RCA" air conditioners, the winner of the grand prize may take his choice of a Champion airplane, a Chris-Craft cabin cruiser, or a Mercury station wagon.

► **ARTHUR H. FAHR**, formerly director of application engineering, has been appointed assistant to the president of Typhoon Air Conditioning Co., Div. of Hupp Corp. His new assignments will be concerned with sales functioning, engineering, production, purchasing and other phases of operation.

► **MODERN MFG. CO., INC.** plans to move into its new plant at Willow Grove in suburban Philadelphia on June 1. The new plant contains some 10,000 sq ft of floor space.



## wholesaler doings...

► **DEMMLER BROTHERS**, Pittsburgh wholesaler, has become the Demmler Brothers Div. of Anchor Sanitary Co. The new division will continue to operate with the same personnel, including sales representatives, office staff, warehouse and delivery people, as previously. Lou Demmler will be in active management of the operation as vice president of Anchor Sanitary Co. in charge of Demmler Brothers Div. Elmer Drebus will be assistant manager of the division.

► **THE ARMSTRONG HEATING SUPPLY Co.**, Chicago, held its 10th annual dealer sales meeting on April 10. The meeting was convened at 2:00 p.m., briefly adjourned at 5:30 for dinner, and reconvened at 7:00. The 1957 line of furnaces was displayed and the selling points demonstrated by representatives from the Armstrong Furnace Co., who came from Columbus, O. for the occasion.

Retail sales promotion was the theme of the meeting. Subjects covered were "Making Profitable Sales During 1957" by Charles R. Bennett, general manager, Armstrong Heating Supply Co.; "Sales Pointers for the 1957 Line," by Charles L. Brooks, sales manager, Armstrong Furnace Co.; "Romancing the Builder," by Jack Swinehart, sales promotion manager, Arm-



AT ARMSTRONG HEATING SUPPLY CO.'S annual sales meeting Charles L. Brooks (right) points out horizontal furnace features to Andy Anderson, Jack Swinehart, Charles R. Bennett, Ed Clifford and Carl Sigal

strong Furnace Co.; "The Chicago Gas Situation," by Dan Collins, Peoples Gas Light and Coke Co.; and "Extra Profits with Electronic Air Cleaners," by John Golden, Trion, Inc.

In describing the best way to make more profit during 1957, Charles R. Bennett said, "If a dealer will make an effort to select his prospects, his percentage of sales in relation to number of hours spent on sales calls will increase." He suggested that the modernization market is the most profitable because the dealer can be more selective in choosing the prospects for his direct mail and cold canvass campaign.

## Thermo-Products

YEAR 'ROUND

### AIR CONDITIONING

A complete line for any type of installation, with top engineering and know-how, gives you equipment that you can install with confidence.

Our summer air conditioning is readily adaptable for installation with new winter air conditioners or existing furnaces, to supply the home with year round air conditioning.

Top quality units in gas and oil: lo-boy basement, counterflows, hi-boy upflows, horizontal furnaces, suspended counterflows and oil and gas floor furnaces.

Dealer benefit from our first unit profit plan. Find out about our "GOOD BUSINESS LINE". Fill out coupon for complete details.

**MANUFACTURERS OF QUALITY HEATING  
AND AIR CONDITIONING EQUIPMENT**

Summer air conditioners are adaptable to basement, hi-boy, counter-flow and horizontal furnaces.



**Thermo-Products Inc.**

THE GOOD BUSINESS LINE

North Judson, Indiana



**THERMO-PRODUCTS, INC.**, North Judson, Ind.  
Gentlemen: Rush me details, without obligation,  
on THERMO-PRODUCTS "Good Business Line."

NAME \_\_\_\_\_  
FIRM \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_

Here's the **HUMIDIFIER**  
you've been **WISHING FOR!**



# BON-AIR

*First Completely Automatic*  
**ATOMIZING HUMIDIFIER**  
*at a POPULAR PRICE*

*This humidifier really works! You'll be amazed at the effective output as BON-AIR automatically atomizes fresh water into a cool, fog-like mist that immediately disappears in the air stream. No more service problems or call backs! One model installs quickly on plenum, duct or counter flow furnace. Looks like a million! Works like a charm! See your jobber or write for illustrated catalog.*

- ★ **LIFETIME COPPER CONSTRUCTION GUARANTEED QUALITY!**
- ★ **MOTOR OPERATED FOR POSITIVE, MECHANICAL FRESH WATER ATOMIZATION!**
- ★ **NO MINERAL RESIDUE — NO LIMING OF WORKING PARTS!**
- ★ **SERVICE FREE — NOTHING MORE TO BUY! NO JETS, NO NOZZLES, NO EVAPORATOR PLATES!**
- ★ **POSITIVE, CONSTANT OUTPUT — YEAR AFTER YEAR!**

Engineered and Designed by  
**ARKLON MANUFACTURING CO.**  
P. O. BOX 3501 • CLEVELAND 18, OHIO

## wholesaler doings

(Continued)



DISTRIBUTORS attending Atlanta meeting hear details of national advertising campaign recently launched by the American-Standard Air Conditioning Div.

► "THE RIGHT PRODUCT AND PROMOTION to meet the demands of today's market" was the theme of a series of distributor sales meetings held recently in Atlanta, Washington, D. C., Chicago and Pittsburgh by the American-Standard Air Conditioning Div. The meetings were attended by 177 men representing 85 distributors from the East Coast and Midwest areas. Speakers included H. E. Rossell, division sales manager, who presented a plan for use by distributors in introducing a new air cooled packaged type central air conditioner in their areas, and W. P. Sheehan, advertising and sales promotion manager, who outlined the division's spring consumer advertising campaign. Division district managers explained the importance of proper dealer identification to assure the dealer's obtaining maximum benefit from the spring advertising program.

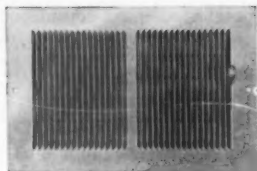
► A. G. BRAUER SUPPLY Co. has been named to handle distribution of packaged air conditioning units for American Blower Div. of American-Standard. Territory to be served by the Brauer firm comprises St. Louis and the surrounding area.

► F. W. KERSCHER was elected president of the Frank J. Kersch Co. at the firm's recent annual stockholders' and directors' meeting. W. A. Bruechert was elected vice president and V. J. Kersch, Sr. was named vice president, treasurer and general sales manager.

► MORE THAN 350 DEALERS, servicemen and salesmen attended the recent service training course sponsored by Apparatus Distributors, General Electric wholesaler in the metropolitan New York-New Jersey area. The first session was devoted to general basic education on air conditioning equipment, the second to installation techniques and application. Speakers included Manny Kern, Apparatus sales manager; Hank Eisengren, application engineer; Dick Coe, service manager; and Robert Coe, General Electric field engineer.

## REGISTERS

the new  
1957  
**KRUEGER  
DESIGN-AIR  
LINE**



3300 — MULTI-LOUVER  
SIDEWALL REGISTER

## GRILLES

# GIVES YOU BIGGER PROFITS

Successful dealers everywhere are using our products now. The new Krueger Design-Air Line is a complete, high-quality line, and it's the biggest profit line on the market today . . . because . . . it's priced right to give you bigger profits.

Write or wire  
for name and  
address of your  
nearest Krueger  
jobber and our  
new 36 page  
catalog.

## DIFFUSERS

2200 ROUND  
CEILING DIFFUSER



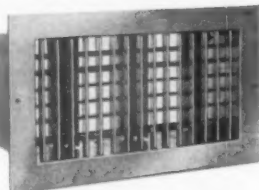
6" to 14" SIZES  
BUTTERFLY DAMPER &  
INSTALLATION RINGS

# KRUEGER

Air Conditioning Corp.

19 E. RILLITO · TUCSON, ARIZONA

"Design-Air" is  
a complete line  
of Grilles and  
Diffusers for the  
Residential Field  
plus Double-De-  
flection Registers  
and Diffusers for  
the Commercial  
and Air Condi-  
tioning Fields.



2860 O. B. D.  
4-WAY DEFLECTION  
WITH OPP. BLADE

# 11 **DIAMOND** TINNERS SNIPS

- Drop Forged
- Chrome Plated
- Individually Boxed
- Competitively Priced

## DIAMALLOY AVIATION SNIPS (Compound Action)



DAR10 Cuts Right



DAL10 Cuts Left



DAS10 Cuts Straight

## DIAMALLOY METAL CUTTING SNIPS

### STRAIGHT PATTERN

No.	STR Over-All Length 7"
DS 7	7"
DS10	10"
DS12	12 3/4"



Cutting Length	Weight, per doz.
1 3/4"	6 lb. 7 oz.
2 3/4"	14 lb. 4 oz.
3"	21 lb. 9 oz.

### CIRCULAR PATTERN

No.	7"
DC 7	7"
DC10	10"
DC12	12 3/4"



1 3/4"	6 lb. 6 oz.
2 3/4"	13 lb. 8 oz.
3"	21 lb.

### COMBINATION PATTERN

No.	14 1/2"
DSC14	14 1/2"



3 1/2"	30 lb. 8 oz.
--------	--------------

### HEAVY DUTY SNIPS

No.	16 3/8"	2 3/8"	42 lb.
DSS16	16 3/8"	2 3/8"	42 lb.



Ask your Wholesale Supplier for Diamalloy Snips made by the manufacturers of the Diamalloy Wrench.

# DIAMOND CALK Horseshoe Co.

DULUTH, MINN.

Est. 1908

TORONTO, ONT.

*In Every Field  
there's ONE Leader!*

*in Furnace  
Cleaning the Leader  
is the PULLMAN  
NEVER-CLOG VAC!*

• The Pullman gets you in and out of the cellar *fast* because it's guaranteed never to clog under any conditions.

**COMPLETE  
ACCESSORY  
KIT  
FREE**

**With Your  
Pullman  
Never-Clog  
Vac**

- 27" metal crevice tool
- Power blower nozzle
- Handy scraper tool
- Flexible metal asbestos packed hose
- 10' x 1½ I.D. heavy duty hose



**ACT NOW! MAIL THIS COUPON!**

**Pullman**

THIS IS THE TIME  
TO CLEAN-UP  
Heating & Air Condi-  
tioning Installations!

AA-5

Pullman Vacuum Cleaner Corp.  
25 Buick Street, Boston 15, Mass.

Rush me complete details on the Pullman Never-Clog Vac, so I can make more calls . . . more sales . . . more profits per day.

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_

## merchandising ideas

► AMANA REFRIGERATION, INC. offers its dealers four new point-of-sale air conditioner displays designed for use on the sales floor, in windows and at shows. A "cartoon" house illustrates the theme that, regardless of outside weather conditions, the room equipped with an air conditioner is always "weather right." Two room units are installed in the "walls" of the house. Another display, accommodating two units, is a multiple steel stand which shows the company's "Year 'Round" and "Slim-Lo" models. A third display features a "flasher" which shows the location of a cooling unit in attic, utility room or basement. Also available to dealers are sales promotion kits containing folders, envelope stuffers, specification sheets, a set of cue cards to guide salesmen in their presentations, newspaper ad mats, etc.

► A MODEL HOME promotion kit featuring the "Woman's Touch" theme was recently introduced to builders throughout the country by Lennox Industries Inc. The theme emphasizes the importance of the woman as the deciding factor in today's new home market.

► A "RESIDENTIAL LOAD CALCULATOR" contained in a mechanical pencil is available from Mitchell Mfg. Co. The combination pencil and load calculator is designed to aid in making a quick estimate of the proper size unit to cool a home or small office. According to the company, the pencil supplies sufficient data to estimate temperature differential, square footage and tonnage for any given floor area from 750 to 2500 sq ft.

► THE CLEVELAND HEATER CO., manufacturer of "Rex" gas water heaters, is conducting a contest to obtain a name and sales slogan for its external flue construction. The company believes that a more colorful name will aid in merchandising this feature. Winners of the contest, which is open to the company's dealers and distributors and their immediate families, will receive merchandise prizes valued at \$175, \$75 and \$50.

► "PUSH-BUTTON SELLING for a Push-Button Era" is the theme of a new marketing campaign now being initiated by John Wood Co's Heater & Tank Div. The plan is designed to fit the needs of the firm's dealers and wholesalers as determined by the findings of a recent survey of division customers. A "Key Distributor Plan" in which the factory will create local selling programs custom-made to fit cooperating wholesalers' local conditions is an important feature of the 1957 program. Under this plan, specially trained factory promotional crews will analyze key areas, set up ad-



**"MONCRIEF  
SAVES  
YOU MONEY..."**



**...on FURNACE PIPE  
DUCTS and FITTINGS**

You actually save time, labor and money with MONCRIEF'S pipe and fittings, for this duct work is uniform in size, quality and workmanship. MONCRIEF'S simplified system of ordering, cuts figuring time, assures faster delivery and greater profits. Write for Catalogue or order from your wholesaler today.

*Moncrief* **FURNACE COMPANY**

**P. O. BOX 1673 ATLANTA, GEORGIA**

**Cut Installation Costs!  
One hammer blow  
permanently rivets**



E-Z-ON Damper Controls are easily, quickly installed to save you time and money. E-Z-ONS lower initial cost offers you additional savings and extra profits. Start saving money now. . . . Call your jobber today!

**LEADING JOBBERS STOCK "EZ-ONS"**  
In Canada — THERMIDAIRE CORP. LTD. Toronto

**M. A. GERETT CORP.**

724 WEST WINNEBAGO STREET, MILWAUKEE 5, WISCONSIN

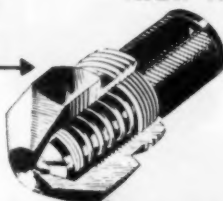


*I give Expert Service  
and I use . . .*

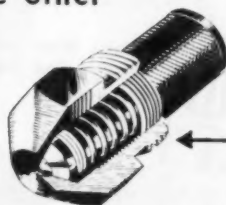
**APTHORP TRUE ALIGNMENT**

**NOZZLES**

**BOTH ARE PERFECT**  
but one may be **BETTER**  
for a **PARTICULAR BURNER**  
than the other



**HOLLOW SPRAY**



**SOLID SPRAY**

Every burner has a certain air pattern that is governed by the design of its particular head. Either an Apthorp Hollow Spray or Solid Spray Nozzle will mate best with this air pattern. By use of the right type, CO<sub>2</sub> will increase from 2% to 4%.

*"My Customers appreciate the DIFFERENCE!"*

For details, write to:

**BOSTON MACHINE  
WORKS COMPANY**

Oil Heating Supplies Div.  
7-17 WILLOW STREET  
LYNN, MASSACHUSETTS

**HANDY  
PIPE**

*delivers air  
when and where  
wanted - and does  
it year after year.*

*F. Meyer & Bro Co.  
Peoria, Illinois.  
The Handy Pipe People.*

# Cut ANY Shape in Metal...

## with a BEVERLY THROATLESS SHEAR!

- Capacities to 3/16" in mild steel
- Make clean, knurl-free cuts in any metal to capacity
- High Carbon High-Chrome Blades
- Built to last a lifetime



Here's What a Beverly Can Do!

Cuts made in 18 ga. metal with Model B-1

Beverly Shears are the most versatile metal shearing tools you can use. Unique shoulder design permits any cut... rack and pinion gives great power with little effort. Alloy steel body for maximum rigidity and strength. Made in 4 models.



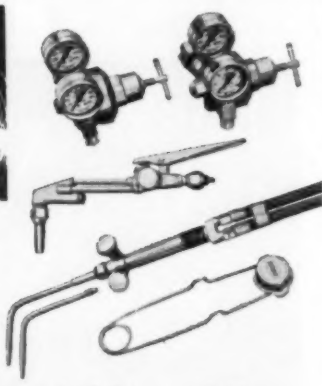
Model B-3 with Ball Bearing Hold Down

Write for illustrated circular—or see your Beverly Distributor.

### Beverly SHEAR MFG. CO.

3020 W. 111th Street

Chicago 43, Ill.



## New Airco portable welding and cutting outfit

- Designed for fast, low cost work in the shop or in the field.
- Cuts metal up to 1" steel plate—welds steel up to 3/16" thickness.
- Low cost, highest-quality, complete welding and cutting outfit.

There are over 800 Authorized Airco Dealers ready to serve you. Check the yellow pages of the telephone directory under "Welding Equipment and Supplies" for the one near-

est you—or write Airco direct for his name. Ask him about the new Airco outfit—and—for details about how you can save money with the Airco Lease Cylinder Plan.



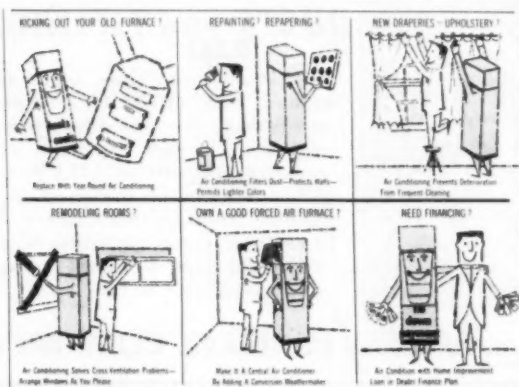
### AIR REDUCTION SALES CO.

A Division of Air Reduction Company, Incorporated  
150 East 42nd Street, New York 17, N. Y.

## merchandising ideas

(Continued)

vertising and sales programs, and work with the wholesaler to assure retail coordination. Kits describing the "Push-Button" plan are mailed by the company to dealer names supplied by wholesalers. Included in the kit are "Push-Button" displays featuring water heaters, displays promoting "Fluid Heat" heating equipment, letterheads imprinted with the dealer's name, match boxes also imprinted with the dealer's name for distribution to customers, and catalogs illustrating the features of water heaters and heating equipment.



ILLUSTRATIONS FOR USE in newspaper home sections show how air conditioning enters into the modernization picture

► CARRIER CORP. has prepared a number of news releases which it is sending to newspaper editors for use in special home sections. The releases, explaining the role heating, cooling or year 'round air conditioning plays in the sale of new homes or modernization jobs, deal with such subjects as the influence of air conditioning on home design, financing plans available for home owners who wish to install heating or cooling, and cooling applications on farms including cooling of livestock quarters.

► EMERSON RADIO & PHONOGRAPH CORP. recently introduced a three tiered display stand for window air conditioners featuring shelves adaptable to any size unit in the line. Features of individual units are pointed out by round colored markers affixed next to each model. The display, of modernistic free form design, is topped by a small revolving sign calling attention to product features. Floor space required totals less than 4 ft.

► A PROMOTIONAL PROGRAM designed to help warm air heating and cooling dealers sell more "add-on" cooling units has been developed by Crane Co. Advertising in consumer magazines will be supported by various sales promotion items available to the dealer through company branches and wholesalers.



## DO ALL These Jobs with ONE TOOL SMITH'S 180° UNIVERSAL BRAKE

Smith's 180° Universal Brake is the answer to the need for one low cost tool that can handle a wide variety of bending and forming jobs with speed and accuracy. Designed to permit selective bending of portions of a workpiece without restriction, the Universal Brake's application and use is literally unlimited. It will handle 18 gauge mild steel 26" wide to 7 gauge 1 1/4" wide, at any angle, up to 180° in one operation. It has adjustable angle stops and back gauges to assure precise duplication of work pieces, making it a very valuable production tool. Write for illustrated circular and more details.

U.S. Patent No. 2,651,349

**R. E. SMITH**

1175 ELIZABETH AVENUE  
WAUKEGAN, ILLINOIS

## AIR CONDITIONING is our SPECIALTY

Refrigeration and Electric Motors, Too!

### OVER 10,000 ITEMS...

the world's most  
comprehensive listing  
of parts and supplies

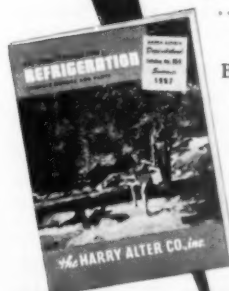
...appear in the  
Harry Alter  
DEPENDA-  
BOOK No. 166  
Summer, 1957

complete with illus-  
trations, descriptions, prices  
and other useful information.

**SAVE MONEY**, time and effort  
by ordering the parts you need  
from this compact, easy-to-read,  
up-to-date catalog.

Write on your letterhead for the  
**DEPENDABOOK**

**PARTS  
and  
Supplies**



WHOLESALE ONLY

### The HARRY ALTER CO., Inc.

1717 S. Wabash Ave., Dept. G, Chicago 16, Ill.

or visit branches

134 Lafayette St.  
New York 13, N.Y.

122 Parkhouse St.  
Dallas 7, Texas

Bldg. B, Unit 8  
690 Stewart Ave. S.W.  
Atlanta 10, Ga.

## 4 NEW QUIET AUTOMATIC HI-RECOVERY\*

OIL-FIRED HOT WATER HEATER for  
YEAR 'ROUND HOT WATER

BURNS No. 2 FUEL OIL  
COSTS AS LITTLE AS \$4.50 PER MONTH

HI-RECOVERY  
**QUIET AUTOMATIC**  
OIL FIRED WATER HEATER



- **GLASS LINED**  
30 gallon with 120 gal. hr. recovery
- **COPPER LINED**  
30 gallon with 120 gal. hr. recovery  
45 gallon with 180 gallon 1 hr.
- **A.S.M.E. GALVANIZED**  
30 gal.—35 gal.—and 44 gal. for  
Motels, Apts., State and Govt. jobs.
- **TWIN COIL JOBS**  
for Launderettes and Big Buildings

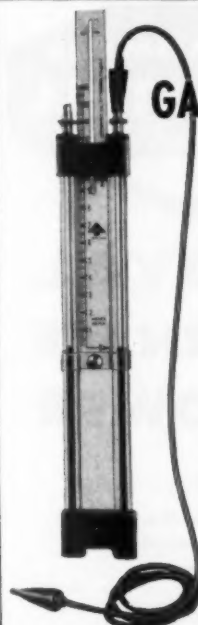
For further information, write or phone Chicago office:  
1005 W. Belmont Ave. Phone: Eastgate 7-6684  
PRODUCTS OF

**QUIET AUTOMATIC BURNER CORP.**

MANUFACTURING ENGINEERS

33-35 Bloomfield Avenue • Newark 4, N. J.

## BACHARACH GAS PRESSURE GAUGE



- Body is transparent, high-strength plastic extrusion.
- Scale features easy readability; made of white plastic, with black scale divisions and numerals; 1/10" W scale divisions.
- Indicating Fluid of 1.9 specific gravity permits pressure readings to 1/10" W over entire scale on gauge of convenient size. Fluid is colored blue for visibility; is non-freezing to low temperature. Gauge is furnished filled ready for use.
- Shut-off Valves are conveniently opened or closed by rotation of knurled discs.
- Scale is adjustable up or down to permit direct reading of pressure.
- Blow-over seal automatically prevents spilling of fluid when gauge is subjected to pressure surges in excess of scale range.
- Body serves as reel for rubber hose.
- For convenient attachment of gauge to gas pipe an adjustable mounting clamp is available as optional accessory.

Gauge supplied with 4 ft. rubber hose and fitting for test connection.

Gauge with scale 0-7" W  
**\$12.50 TRADE NET**  
Gauge with reversible scale  
— 0-15" W on one side,  
and 0-8.5 ounces per sq.  
in. on other side.  
**\$16.00 TRADE NET**

Ask your Jobber or write for Leaflet 830

**BACHARACH INDUSTRIAL  
INSTRUMENT COMPANY**

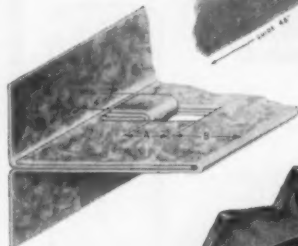
200 N. Braddock Ave., Pittsburgh 8, Pa.

## —THOR QUALITY TOOLS —

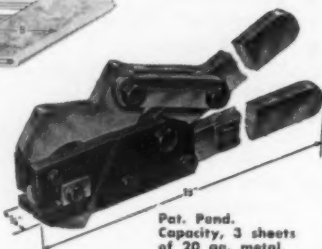
Are time and money savers in heating and ventilating duct work.

Thor government lock dies shear — punch a 5/32" hole — and mark point at breakline, all in one operation.

Dies available for 1", 1 1/4", 1 3/8", and 1 1/2" government locks. Hand operated, or for punch presses.



Thor Universal Clip Punch, Model #300-1. Completes lock in one operation — Saves 50% labor.



Efficient tool for fastening gov't. locks and standing seams. New clip punch for 3 sheets of 18 ga. material is now available. Ask for Model #300-5. See your local dealer or write for literature and samples of metal sheared in above tools.

**THOR TOOL AND DIE CO.**

865 Estabrook St.  
San Leandro, Calif.

Shipped COMPLETELY ASSEMBLED  
**READY TO INSTALL**



**ROYAL  
FURNACE  
BLOWER**

Models with 12" or 10" blower wheel

- Heavy steel bottom, requires no cementing.
- High motor mount, safer in damp basements.
- Large access door, standard-size filters.
- Variable speed drive, easily adjusted.
- Unusually quiet, sturdy construction.
- Beautiful baked-on enamel finish.
- Heavy duty motor, automatic overload protection.

For Prices and details, write

**ROYAL PRODUCTS CO.**

1406 E. 4th St.

Waterloo, Iowa

## appointments . . .

► **WILLIAM A. LAKE** as sales manager for the Unitary Equipment Div. of Carrier Corp. He will be responsible for the divisional field sales staff and the distributor-dealer organization. Mr. Lake joined the firm in 1951 as divisional product promotion manager for residential and commercial packaged equipment. He was named residential equipment promotion manager in 1952 and became sales manager for residential equipment in 1953.



William A. Lake



Walter D. Wood

► **WALTER D. WOOD** as vice president, sales, for the Scaife Co. of Pittsburgh. Mr. Wood will be in charge of sales of all divisions—Timken Silent Automatic Div., Pressure Vessels and Defense Work. He was formerly with Kennedy Valve of Elmira, N. Y., and before that was associated for several years with A. O. Smith Corp. R. W. Thrasher has been named vice president, operations. Mr. Thrasher, who was previously with Rheem Mfg. Co., will be in charge of manufacturing and production for all divisions.

► **GERALD POWELL** as assistant sales manager of White-Rodgers Co. Mr. Powell will have headquarters in St. Louis. He has headed the Chicago sales region for the past two years and before that worked in the service information department covering western Ohio, western Michigan, Indiana, Illinois and parts of Iowa.

► **WILLIAM B. DOWNES** as manager of the Stainless Steel Sales Div. for Crucible Steel Co. of America. Mr. Downes has been assistant division manager for stainless steel sales for more than two years. He has been with the company for almost 23 years, serving in various capacities including manager of welding wire and electrode sales for the stainless division and product manager of bar, wire and weld rod sales.

► **WILLIAM D. LANGE** as sales manager for Heatilator, Inc., a division of Vega Industries, Inc. Before his recent promotion Mr. Lange was assistant sales manager for the division.

► **R. L. COLLISTER** as manager of equipment insulation sales of the Insulation Div., Armstrong Cork Co., succeeding L. E. Cover, who retired on April 1 after



## GOOD JOBS NEED GOOD TOOLS

For Longer-Lasting, Cooler-Handling use the "FITRITE" SPECIAL ALUMINUM MOP HANDLE.

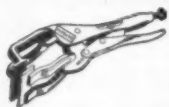


Light weight, unbreakable, economical. Will not burn. It's job-tested, engineer approved, and offers many exclusive features that make it the most popular Roofers' Mop Handle made. Offered in 6', 7', and 8' lengths.

### A MECHANIC'S THIRD HAND

"FITRITE"  
3-WAY  
CLAMP

Throat  $3\frac{3}{8}$ " deep  
Jaws  $3\frac{1}{2}$ " x  $\frac{3}{4}$ "



A necessary tool for every sheet metal man. Use it for on-the-job bending, forming, seaming, straightening.

Price \$3.55

### "FITRITE" SAFETY HOISTING HOOK

The Sliding Sleeve is gravity operated and drops into position automatically keeping any item safely locked in while hoisting.



A new hoisting hook for safely hoisting buckets and other materials.

Price \$2.50

For 1" rope or cable.

To protect the trade, please use your printed stationery

**DAVID LEVOW** 698 HART ST.  
BROOKLYN 21, N.Y.

## "CORRECT PRACTICE in OIL HEATING"

NOW AVAILABLE TO YOU!

A complete reprint of the valuable series

by J. J. Mirabile

This practical series covers every angle of oil burner work, including arrangement of shop . . . stocking of parts . . . record-keeping . . . installation procedures . . . the handling of crews . . . how to make heating surveys . . . how to size combustion chamber . . . how to install thermostat . . . how to start the burner . . . how to use testing instruments . . . and how to operate a service department. It contains, as well, a complete list of causes and cures of oil burner troubles that will serve as a reliable guide in making service calls.

Every shop handling oil burner jobs should own this book. Full size, 8½ by 11 inches — 57 pages of practical helps. Send \$1.00 for a copy to the address below.

**KEENEY PUBLISHING COMPANY**

6 No. Michigan Avenue

Chicago 2, Ill.

## 5-SECOND APPLICATION!

FOR

**RESIDENTIAL AIR CONDITIONING  
Warm Air Heating... Sheet Metal Contracting**

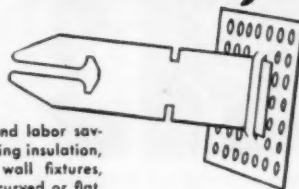
### INSULATION ANCHORS

and FASTENERS - **Stic-Klips®**

• No Surface Drilling

• Quick Fastening

• Strong Positive Bond



Stic-Klips® are time and labor saving fasteners for attaching insulation, strapping, metal lath wall fixtures, wiring and conduit to curved or flat, metal or masonry surfaces.

Application takes only seconds. All you do is apply a thin coat of Stic-Klip® adhesive to the base of a Stic-Klip® fastener with a putty knife. Apply another thin coat as primer base on porous surface area. Place Stic-Klip® fastener to primer base until adhesive fills holes. Clean off excess adhesive with putty knife.

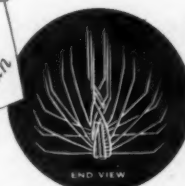
Write for your application bulletins, Today!

**Stic-Klip®**

MANUFACTURING CO

68 Regent St. Cambridge 40, Mass.

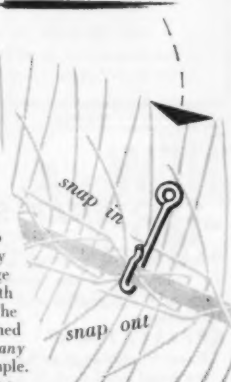
keeps birds flying  
**NIXALITE**  
and buildings clean



PERMANENT

yet removable!

Nixalite Bird Barrier and Repellent ridges buildings of birds permanently — yet it is instantly removable for window washing, painting, cleaning, at expiration of lease, or for any reason whatever. How? Nixalite's resilient stainless steel Clip makes it a snap! During installation, you snap Nixalite's base bar into the steel Clip. Want to remove the Nixalite? Simply snap it out! The Nixalite Clip® is engineered to hold the Nixalite base bar slightly above the surface of a building ledge to permit the flow of rainwater both under and over the base bar. The correct type of fastener is furnished with the Clip for installation on any material specified. Send for sample.



8

pages in Sweet's Architectural, Light Construction, and Industrial Construction Files, and in Building Specialties Manual are devoted to Nixalite.

**NIXALITE COMPANY OF AMERICA**

115-119 W. Third St. Davenport, Iowa, U. S. A.

## appointments

(Continued)

41 years of service with the company. Mr. Collister, formerly assistant manager of equipment insulation sales, joined the company in 1948 and has served in division sales offices in Cincinnati, Indianapolis and Chicago. John J. Roper has been appointed assistant district manager of the division's Boston district office.



Robert L. Larson    Hardie W. Beck    Milton C. Fidgeon

► **ROBERT L. LARSON** as general manager of the new Indianapolis, Ind. steel service plant, now under construction, of Joseph T. Ryerson & Son, Inc. The new plant is scheduled for completion in September. Hardie W. Beck has been appointed to the newly created post of sales manager for the company's Pittsburgh steel service plant. Milton C. Fidgeon has been assigned to the New York area steel service plant, located in

Jersey City, N. J., where he will serve as assistant sales manager. Named products sponsor for sheet and strip sales at the firm's Milwaukee plant is Ronald S. Yale, former sales representative.

► **KENNETH R. LUNDBERG**, general manager of the Grenada, Miss. plant of McQuay, Inc., as head of the company's sales operations. He succeeds H. Blake Thomas, general sales manager, who has resigned. A member of the organization for 15 years, Mr. Lundberg has been chief engineer, manager of sales engineering and assistant general sales manager. He also has served as factory manager of the Faribault, Minn. plant.

► **HYTER C. HALL, JR.** as a district sales manager for Iron Fireman Mfg. Co. He will direct sales of commercial heating equipment in the Philadelphia, Washington and Baltimore areas.

► **RICHARD C. WALSH** as manager of the new branch sales engineering office in Green Bay, Wis. for American Blower Div. of American-Standard. In his new position, Mr. Walsh will be responsible for providing sales engineering assistance to users of air handling, heating and cooling equipment in the Green Bay area. Before his recent promotion he was a member of the Minneapolis office sales engineering staff.

## Be prepared for PROFITABLE BUSINESS...

Warm weather is just around the corner and hundreds of thousands of heating plants will be shut down for the summer season. During the Spring and Summer of 1957 the cleaning of these furnaces will be big business. "Be prepared" to get your share of this profitable business. The requirements are simple: All you need is a service department, an expert crew and a GENERAL "GIANT" FURNACE CLEANER. The General "Giant" is the most powerful vacuum power cleaner in the furnace cleaning industry today. In addition, \$300 down starts you in business and earning \$100 or more a day.

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FOR FURTHER INFORMATION AND DETAILS  
or for literature on the New Big General Space Saver  
all weather operation — no parking problems.

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## NEW "K" BB-SNAP STRAP DESIGNED

To revolutionize the method of attaching K Box Gutter and our K Gutter Hanger.

### APPLICATION

Place front slot over hook on hanger, press strap up and over the bead until Back U Shape portion snaps down into position.

NOW FURNISHED WITH OUR STYLE K BOX GUTTER HANGER

LOOK FOR QUALITY WHEN YOU BUY!

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SOLD THRU LEADING JOBBERS EVERYWHERE

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## MANUFACTURERS OF FURNACE PIPE AND FITTINGS, Prefabricated Ducts,

also conductor pipe, eaves  
trough, drip edge, rake strip, etc.

**THOR METAL PRODUCTS CO., INC.**

Box 118 Eastwood Station

Syracuse, N. Y.



## Whitney Punches . . . No. 95A HYDRAULIC PUNCH



Capacity: 12½ ton 20 strokes per min. ½" hole thru ¼" iron, ¾" hole thru 3/16" iron, 2" hole thru ⅛" iron, 10" depth of throat.

Tool operated from front by foot treadle. Operator has complete control over descent of punch.

Low equipment cost in round, square, oval, rectangular and special shape punches.

No. 95B Punch same as shown except without cabinet.

Our trade mark on every tool is your assurance of entire satisfaction and the utmost in service. Please write us today for our new catalog, then contact your Jobber.

**W.A. W**  
**WHITNEY MFG. CO.**  
636 RACE ST. ROCKFORD, ILL.

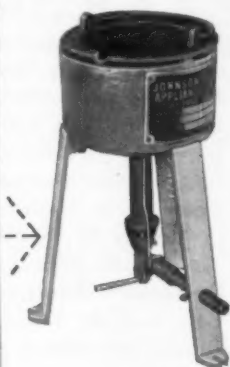
## FASTER HEAT

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### MELTING POT FURNACES

#### NO. 15

Melts 18-lb. lead capacity in under 10 min. Built to stand up under hard use. Has powerful No. 5, Type A Johnson Patented Direct Jet Bunsen Burner with shut-off valve and pilot light. Height, 13". 13,000 BTU's per hr.



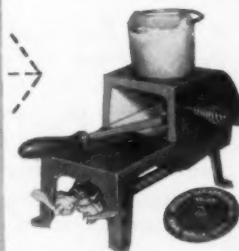
#### NO. 105

##### Soldering and Melting

No forced air blast required. Cast iron pot capacity, 10 lbs. Two-burner unit doubles for heating soldering coppers up to 12 lbs. per pair. Firebox 3¾" by 4½" by 5½". 26,000 BTU's per hr. Length, 14".

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APPLIANCE COMPANY  
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look to Johnson—Since 1901

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- ONE-PIECE BLOW PIPE ELBOWS
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- FLOOR SWEEPS • FLEXIBLE TUBING
- CUT OFFS • ANGLE RINGS
- CYCLONE COLLECTORS & SUPPORTS

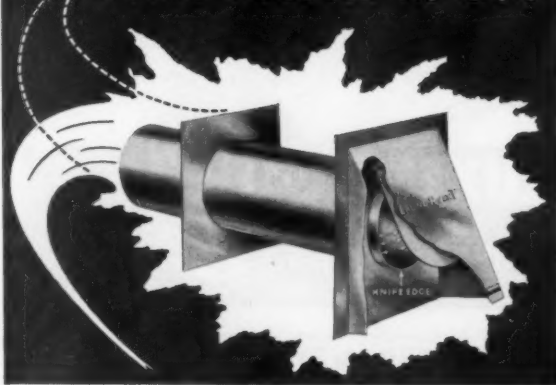
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THE KIRK & BLUM MFG. CO.  
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VENTING EQUIPMENT  
BY

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ENGINEERING CO.

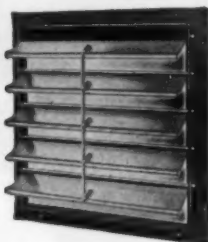
2288 UNIVERSITY AVENUE • ST. PAUL 14, MINNESOTA

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- Aluminum Pipe
- Fiberglass Ducting
- Window Plates
- Special Adapters

## Elgo Ventilating Specialties

Different Types  
Of Shutters To Meet  
Every Ventilating Need

No matter what your ventilating problem may be, you will find the type of shutter you require among the 22 types of shutters and dampers in the Elgo line. Write for NEW 16-PAGE CATALOG.



"ELGO" TYPE  
AUTOMATIC SHUTTER  
Front View (Open)

Free  
CATALOG

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## ORNAMENTS

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Zinc Ornaments Available From Stock. Copper, brass, bronze, aluminum and stainless steel ornaments made up promptly.

*If you don't have catalog K, send for it NOW.*

**MILLER & DOING**

89 ADAMS STREET

BROOKLYN, N. Y.

SAMPLES FREE  
**SODER STAINLESS  
STEEL RAPIDLY**



FLUXES  
SODERING  
BRAZING & WELDING  
L. B. ALLEN CO. INC.  
Chicago 31, Ill.  
6702 W. Bryn Mawr Ave.

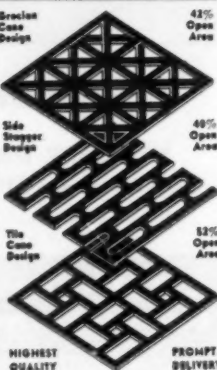
## PERFORATED METALS FOR EVERY INDUSTRIAL USE

The "Ornamental" light-gauge designs here illustrated are only a few of the many you can choose from in our new Catalog 39 and we are always pleased to quote on original designs or special work of any kind.

For larger unit-openings, using metals up to 1/4" in thickness, we offer a wide variety of equally attractive designs in our Catalog 36 on Diamond Architectural Grilles.

Send us your blueprints. We are equipped to fabricate special sections to any desired extent and welcome opportunities to make money-saving suggestions.

**DIAMOND MANUFACTURING CO.**  
**Box 34 WYOMING PENNA.**  
(Wilkes-Barre Area)  
West Coast Plant,  
Diamond Perforated Metals Co.  
17915 So. Figueroa St., Gardena, Calif.



## appointments

(Continued)

► **F. G. JOHNSON** as sales manager of the Heating and Air Conditioning Div., Century Engineering Corp. Before joining the division, Mr. Johnson was with Bastian-Morley Co., Inc.



F. G. Johnson



Ralph J. Davidson

► **RALPH J. DAVIDSON** as a sales representative for the Heating Controls Div. of Robertshaw-Fulton Controls Co. He will service the Pacific Southwest area, with headquarters at the company's Grayson Controls Div., Long Beach, Calif.

► **JACK B. PORTER** as manager of the newly opened Richmond, Va. office of the Powers Regulator Co. As manager of the Richmond office, Mr. Porter, formerly with the Washington, D. C. office, will direct the installation of the company's pneumatic temperature controls for heating, ventilating and cooling in the Richmond, Norfolk and southern Virginia area.

► **R. O. GUNDLACH, H. A. Caldwell, J. A. Klaiber, H. Fleit and J. S. Cavanaugh** as distribution district managers for Worthington Corp.'s newly formed air conditioning and refrigeration internal sales organization. Mr. Gundlach, assigned to the Midwest district, will have headquarters in Chicago; Mr. Caldwell, named to the Southeastern district, will headquarter in Atlanta; Mr. Klaiber goes to the central district and will have offices in Cleveland; Mr. Fleit, with the Northeastern district, will headquarter in New York City; and Mr. Cavanaugh, assigned to the central district, will maintain offices in Philadelphia.

► **FRANK HICKEY** as district representative in the Boston territory for the American-Standard Air Conditioning Div. Mr. Hickey was formerly district representative in the Detroit territory, in which capacity he is being succeeded by Ted Bujewski. Mr. Bujewski was formerly a cooling sales engineer for the division covering the territories of Chicago, Omaha, Minnesota and Wisconsin-Illinois.

► **DOUG RIPPE** as district salesman for Research Products Corp. covering southern Texas, Louisiana and Mississippi. Mr. Rippe will headquarter in Houston.



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# SERVICE SECTION

## SHEET METAL MACHINES & TOOLS

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Chicago Hand Brakes  
Chicago Press Brakes  
Pexto Power Shears  
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for safe climbing  
... Order today.

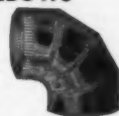
### JOHNSON LADDER SHOE CO.

Eau Claire, Wisconsin

## ADJUSTABLE ELBOWS

Registers and Grilles  
Deliveries from Stock

Juniper Elbow Co. Inc.  
72-15 Metropolitan Ave.  
Middle Village, L.I., N.Y.



## Drive Cleat Notcher



Handles up to 3" wide,  
22 ga. or lighter. Hand  
or foot operation. Mounts  
on bench, or on job with  
clamps, or bolts and  
screws.

## HANDY TOOLS AND EQUIPMENT

### New Clip Punch

For fastening slips or seams  
on ducts. Will push a "half  
moon" through 3 thicknesses  
of 18-ga. steel. No hammer-  
ing or flattening out to fast-  
en slip to the duct.

COMPLETE LINE OF SHEET  
METAL MACHINERY

### Quick Set Dividers



Fastest and  
most accurate on  
the market. Two sizes  
for circles up to 36" and  
48". Removable steel points,  
or pencil. No center punch.

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SALES ENGINEER AVAILABLE — 20 years experience heating industry sales, service, and management. Desire territory representing manufacturer. Will consider engineering, service or training school department position. Married, 41 years of age. Address Key 1083, American Artisan, 6 North Michigan Ave., Chicago 2, Ill.

## ✓ SITUATIONS OPEN

WANTED — Engineer to design and layout warm air heating systems. Write MAGGILL FOUNDRY & FURNACE CO., Bloomington, Illinois.

WANTED: Heating and Air Conditioning Estimator and/or Salesman. Give complete details of education and experience to: Joel A. Wier, Jr., WHITE & WIER, INC., Athens, Georgia.

Sheet metal estimator and supervisor for fabrication and installation of commercial and industrial ventilation and air conditioning. Address Key 1079, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

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U.S. Savings  
Bonds!

## ✓ FOR SALE

FOR SALE — (New) 438 boxes of Baseline Mfg. Corp. steam or hot water radiators, 2" pipe, 30' to a box. GENERAL MACHINERY SALES CO. 2027 So. Santa Fe Ave., Los Angeles 21, California.

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## "CORRECT PRACTICE in OIL HEATING"

This special series covers every angle of oil burner work, including arrangement of shop . . . stocking parts . . . record-keeping . . . installation procedures . . . the handling of crews . . . how to make heating surveys . . . size combustion chambers . . . install thermostats . . . start burners . . . use testing instruments . . . and operate a service department. It contains, as well, a complete list of causes and cures of oil burner trouble — 57 pages of practical helps. Send \$1.00 for a copy to the address below. KEENEY PUBLISHING COMPANY, 6 No. Michigan Ave., Chicago 2, Ill.

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**DISABLED VETERANS**



— To Be Worn by  
*Patriotic Citizens*  
buy a V. F. W.  
**BUDDY POPPY**

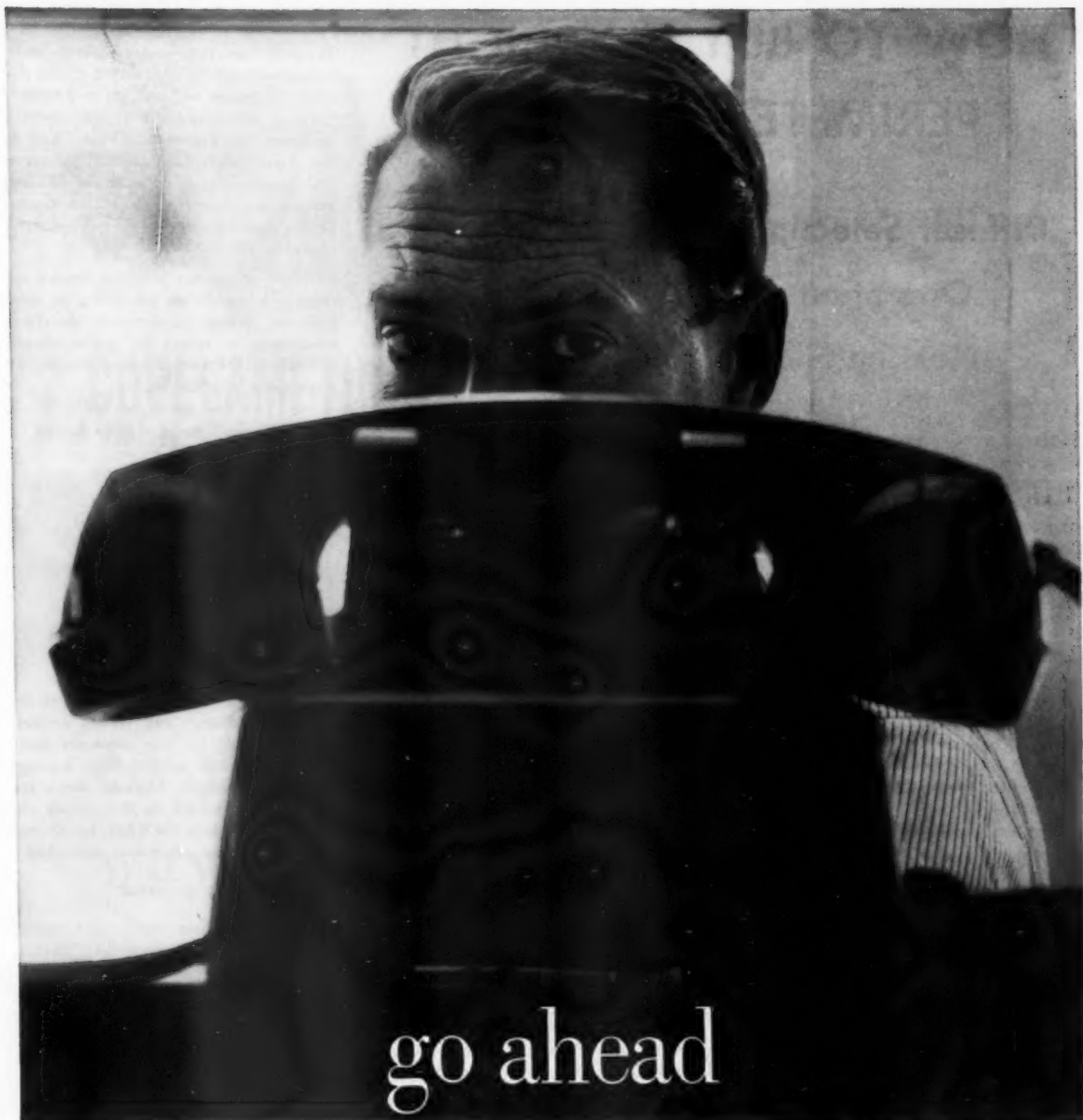
**VETERANS OF FOREIGN WARS  
OF  
THE UNITED STATES**

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# go ahead **CALL!**

the fastest cure for worry about cancer: a call to your doctor now!

**Scared? You shouldn't be!** Look at it this way. The average man who walks into the doctor's office walks out floating. That lump that was so frightening . . . nothing to worry about at all! The sky's bluer, the air's sweeter, it's a great big beautiful day . . . because he picked up that phone and called!

**It happens all the time.** It can happen to you. "Sure," you say, "but just supposing" . . . OK. Let's look at the facts. In past years, we were

saving 1 out of 4 cancer patients. Today, we're saving 1 in 3. And the odds could get better still . . . if *people would call their doctors in time!*

**So go ahead...call.** See your doctor now. And after your checkup—how about a check for the American Cancer Society? Every dollar sends us further along the road to cure. And when *that* happens . . . it's going to be a wonderful day for us all! Send your check to "Cancer" in care of your local Post Office.

# HOW TO BUY THE RIGHT PERIMETER DIFFUSER

## Diffuser Selection is Vital for Efficient Operation of True Perimeter Heating and Cooling Systems

Failure to select a perimeter diffuser designed for the job results in over-all system efficiency loss and uneven heat. Too often an otherwise well-planned system fails because the diffusers are not specifically designed and engineered to meet the objectives of *true perimeter* heating and cooling.

### How a Perimeter Diffuser Works

Perimeter heating and cooling is based on the principle of controlling room temperature by heating or cooling from the outside walls. Diffusers should be so designed and installed as to lay a blanket of air across entire exposed wall areas in an upward-sweeping, fan-shaped pattern. For most effective results, this air pattern should parallel the wall without subjecting it to direct air blasts. (see illustration below)

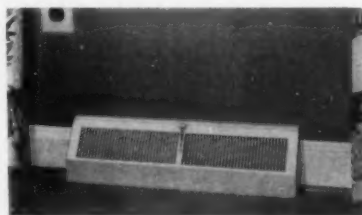


Laboratory smoke test shows *true perimeter* air pattern sweeping upward along wall areas. Shown here is the "Perfusaire" perimeter diffuser manufactured by the Auer Register Company.

### Drafts Eliminated

Properly installed with the correct job-designed perimeter diffuser, a *true perimeter* system will eliminate drafts at the source. For example, drafts are usually caused by cold air moving down the walls. A *true perimeter* diffuser meets and stops these drafts by throwing a large pattern of heated air up the wall to intermingle with and kill the cold air. Floor drafts, too, are automatically elimi-

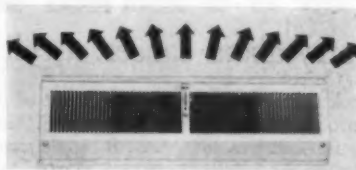
nated because perimeter diffusers located on the outside walls stop drafts at doors and windows.



"Perfusaire" perimeter diffuser located under window area stops wall and floor drafts at their source. The Auer "Perfusaire" is only 18 inches long, yet has the capacity of 4 to 8 foot units. This neat, compact unit blends perfectly into any decor, modern or traditional.

### Economy with Efficiency

The well designed and engineered perimeter diffuser is able to provide maximum air delivery with a minimum of resistance or pressure loss. In other words, a large free area in comparison to its overall length, with vanes set for the proper distribution of this air in a *true perimeter* pattern. Low resistance also means a lower electrical cost while reducing the blower load by utilizing the full capacity of the blower unit.



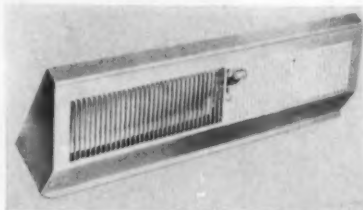
"Perfusaire" diffuser vanes are scientifically deflected in the proper directions to produce a *true perimeter* air pattern without causing air resistance that decreases system efficiency.

### Combination Heating-Cooling Diffusers

Business-wise heating and sheet metal contractors should look ahead to the day when cooling is to be added to a present heating installation. For the owner's benefit a *true perimeter* diffuser, such as the Auer "Perfusaire", should be specified because it can be used for efficient heating and later for cooling or combination heating-cooling systems without replacing the diffuser.

Location of outlets and air returns are equally important in producing an even floor to ceiling temperature, therefore, positioning of return air grilles should also take into consideration future improvements or additions.

### "Perfusaire" Has Exclusive Design



Only the Auer "Perfusaire" provides the engineered accuracy and system dependability required for *true perimeter* heating, cooling and combination heating-cooling installations. Diffuser vanes are scientifically directed in the proper directions to produce the ideal, fan-shaped perimeter pattern previously described.

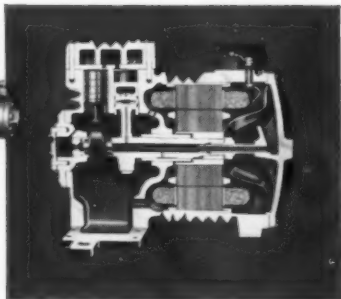
### Easy to Install

Heating and sheet metal contractors everywhere are discovering that "Perfusaire" cuts installation costs up to 50% . . . increases profits. It installs quickly and easily without cutting or fitting in new or old construction, in or against the baseboard or plaster. It hugs the wall and floor surface eliminating unsightly gaps and the need for filler strips. Perfusaire's pre-cut duct-opening measures 2 1/4 x 12" — convenient knock-outs enlarge the opening to 2 1/4 x 14". For the convenience of the installer each unit is shipped complete with built in damper ready for fast, simplified installation. For complete details and specifications on Perfusaire and other units in Auer's complete line of "Perimeter" diffusers, for baseboard, wall, ceiling or floor use, write to:

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